



FIG. 1

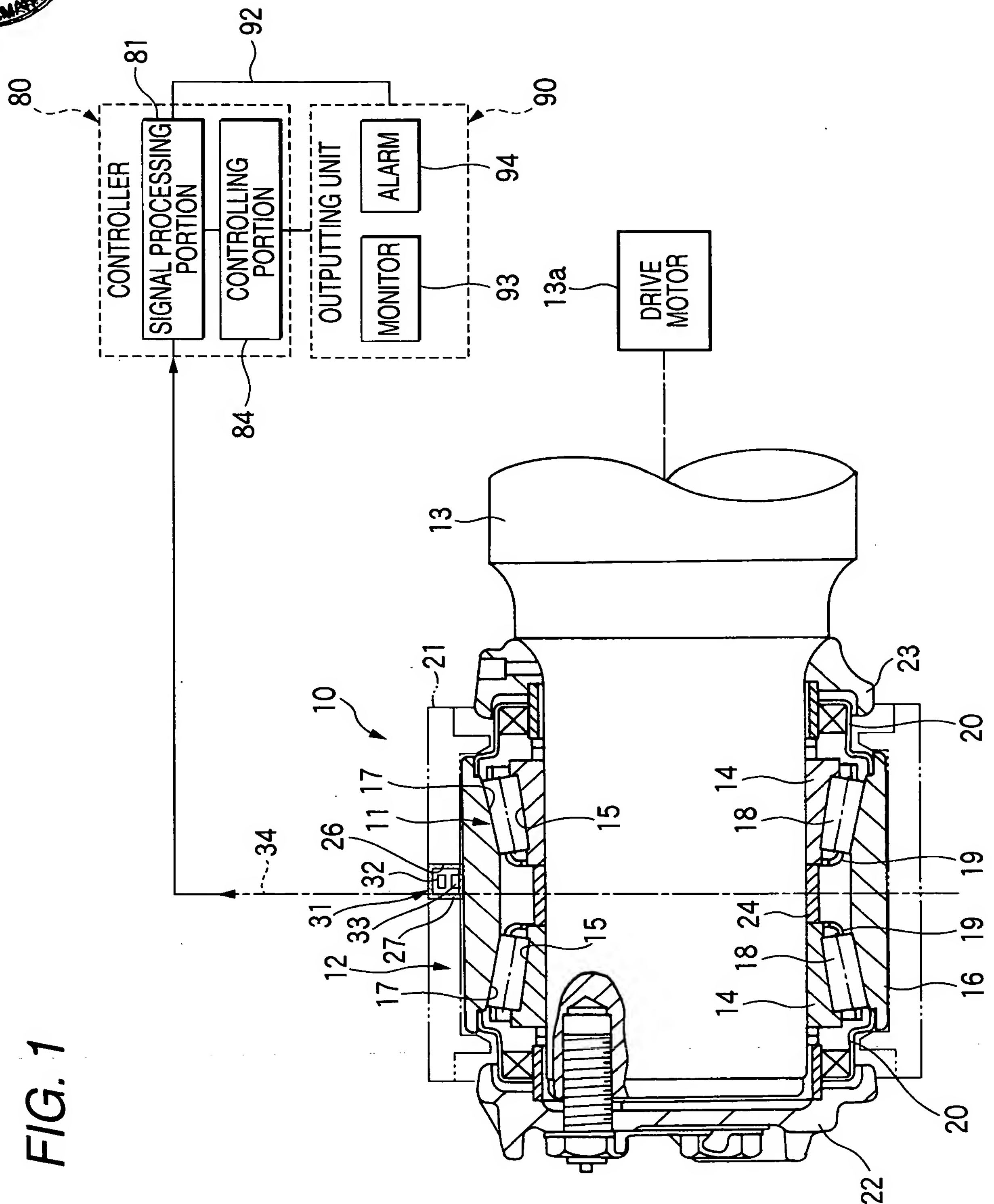




FIG. 2

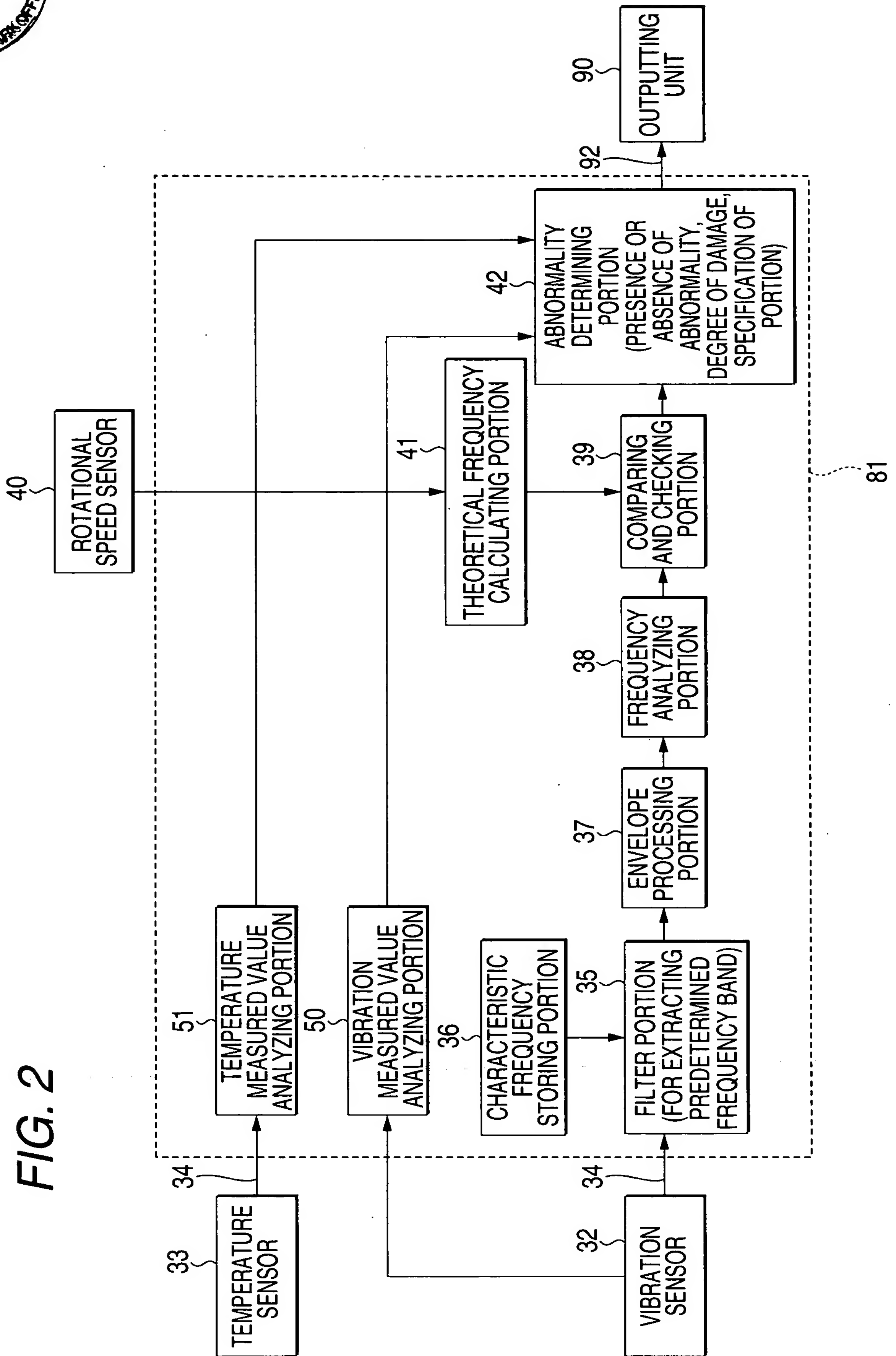




FIG. 3

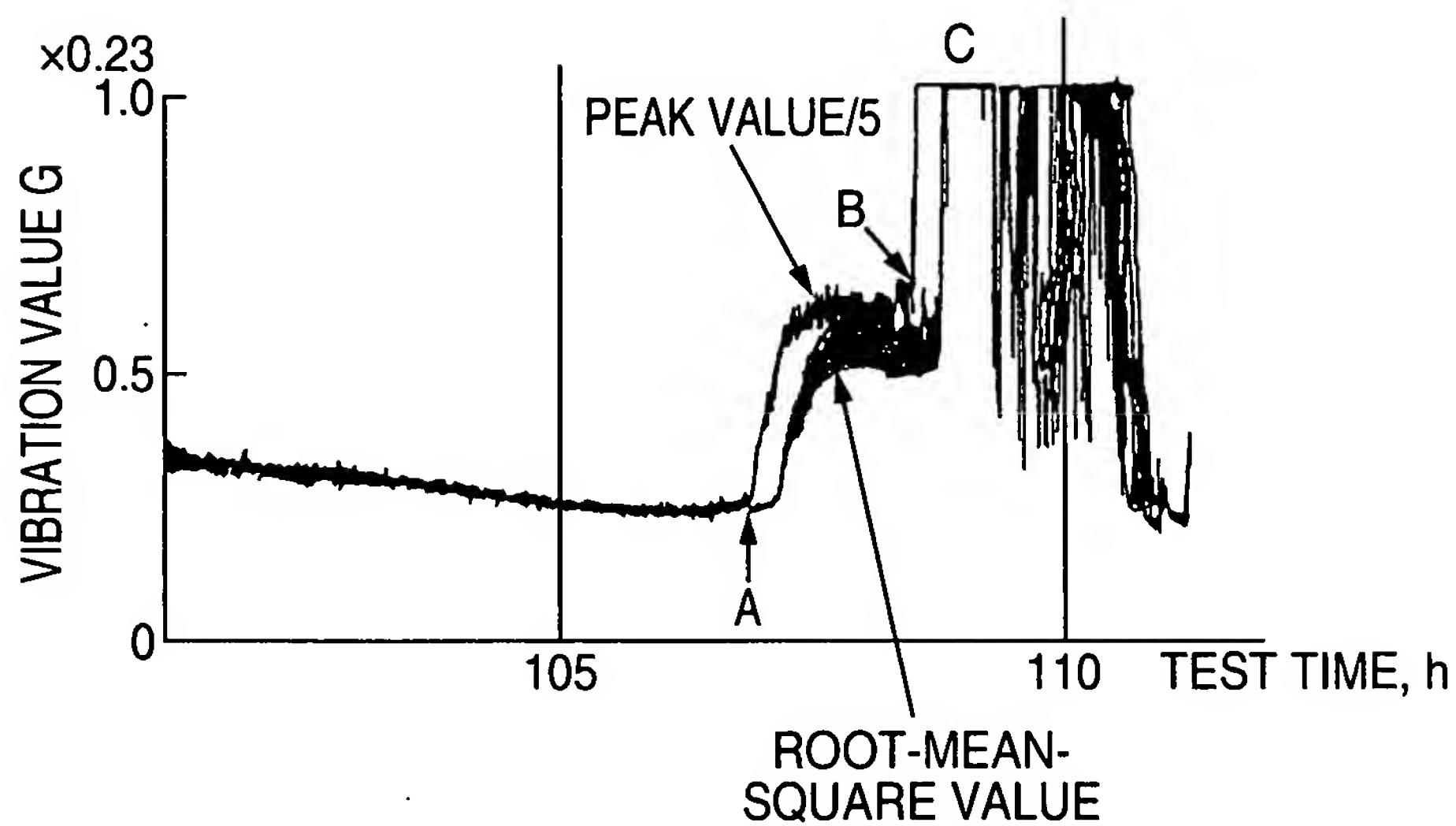


FIG. 4

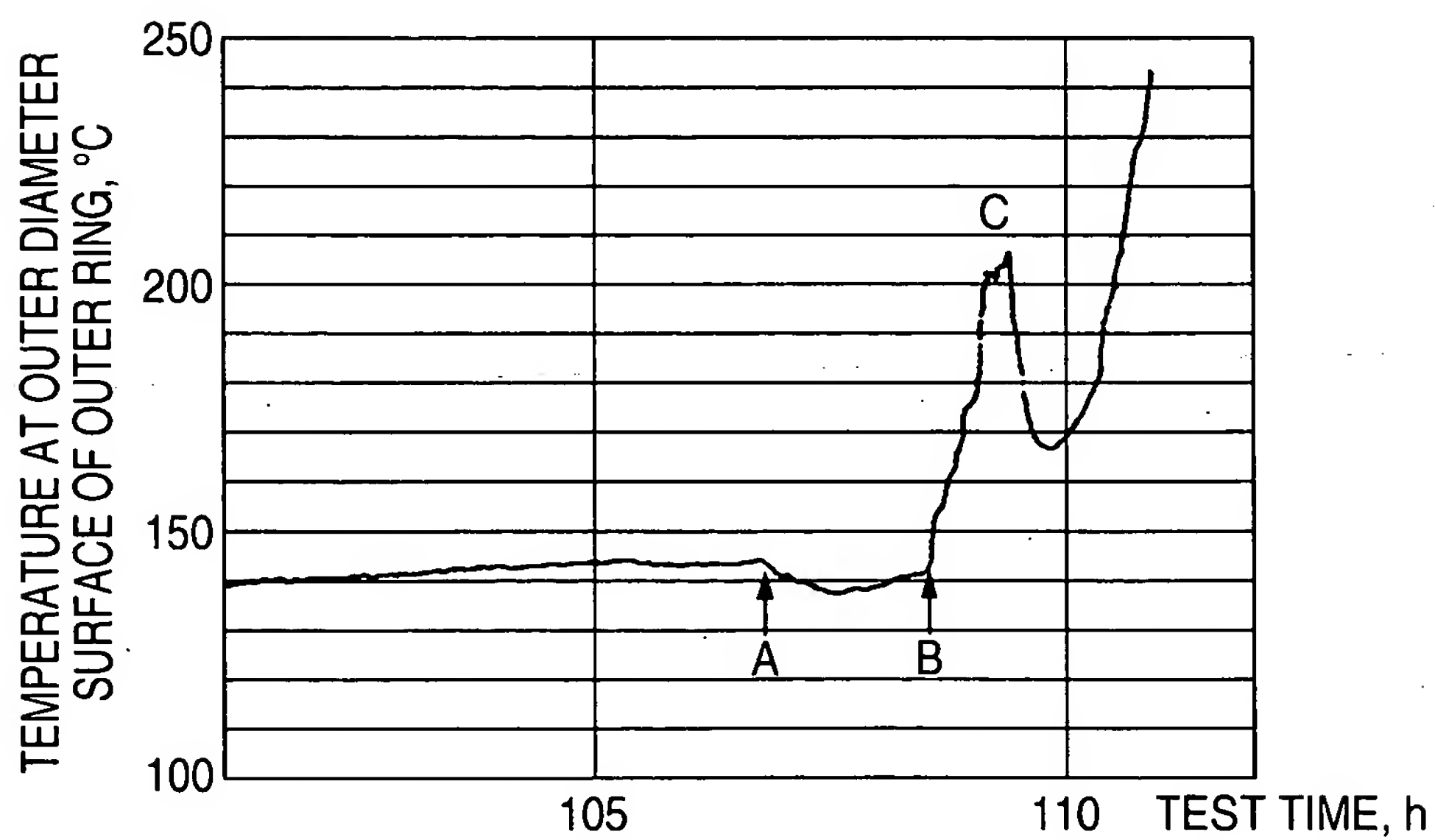




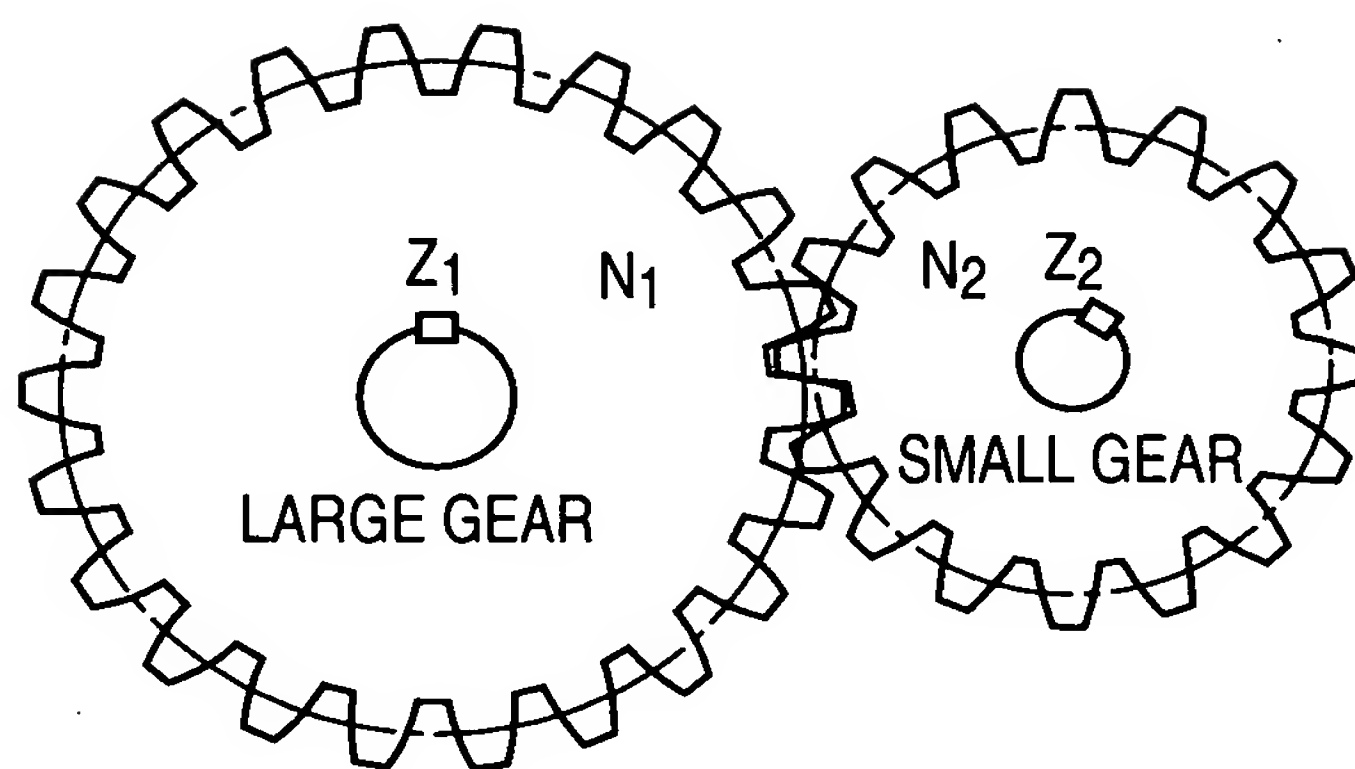
FIG. 5

PORTION OF BEARING (Sx)	FREQUENCY CORRESPONDING TO THE PORTION
INNER RING (Si)	$Zf_i = \frac{f_r}{2} \left(1 + \frac{D_a}{d_m} \cdot \cos \alpha \right) Z$
OUTER RING (So)	$Zf_o = \frac{f_r}{2} \left(1 - \frac{D_a}{d_m} \cdot \cos \alpha \right) Z$
ROLLING ELEMENT (Sb)	$2f_b = f_r \left(1 - \frac{D_a^2}{d_m^2} \cdot \cos^2 \alpha \right) \frac{d_m}{D_a}$
RETAINER (Sc)	$f_c = \frac{f_r}{2} \left(1 - \frac{D_a \cdot \cos \alpha}{d_m} \right)$

f_r : INNER (OUTER) RING ROTATIONAL SPEED [Hz]
 f_c : RETAINER ROTATIONAL SPEED [Hz]
 f_b : ROLLING MEMBER ROTATING SPEED [Hz]
 d_m : ROLLING ELEMENT PITCH CIRCLE DIAMETER [mm]
 Z : NUMBER OF ROLLING ELEMENT
 f_i : $f_r - f_c$
 D_a : ROLLING MEMBER DIAMETER [mm]
 α : CONTACT ANGLE [rad]



FIG. 6



MESH FREQUENCY COMPONENT : $S_g = Z_1 \times \frac{N_1}{60}$ or $S_g = Z_2 \times \frac{N_2}{60}$

N_1 : ROTATIONAL SPEED OF LARGE GEAR (min^{-1})

N_2 : ROTATIONAL SPEED OF SMALL GEAR (min^{-1})

Z_1 : TEETH NUMBER OF LARGE GEAR

Z_2 : TEETH NUMBER OF SMALL GEAR

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FIG. 7

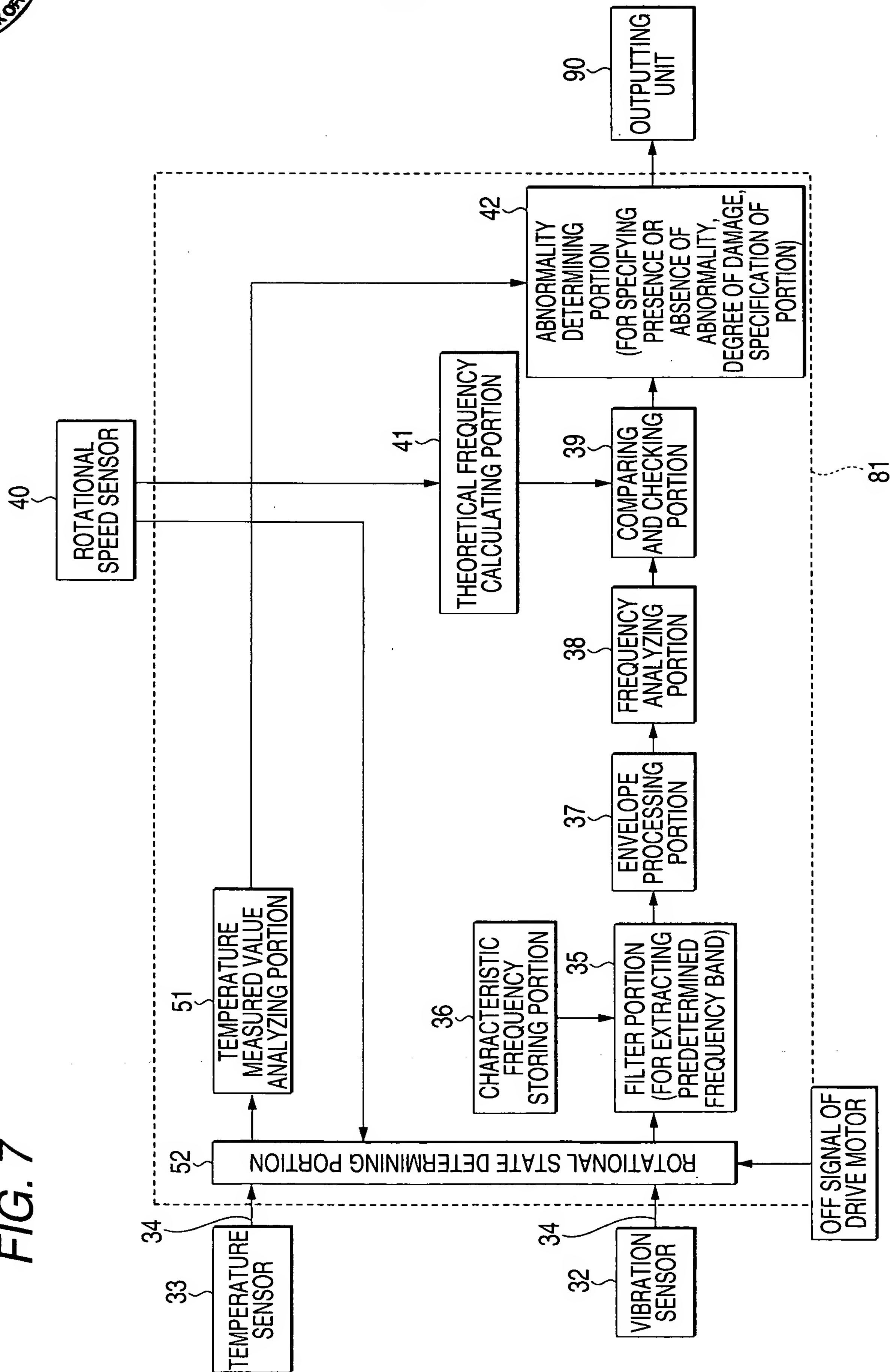




FIG. 8

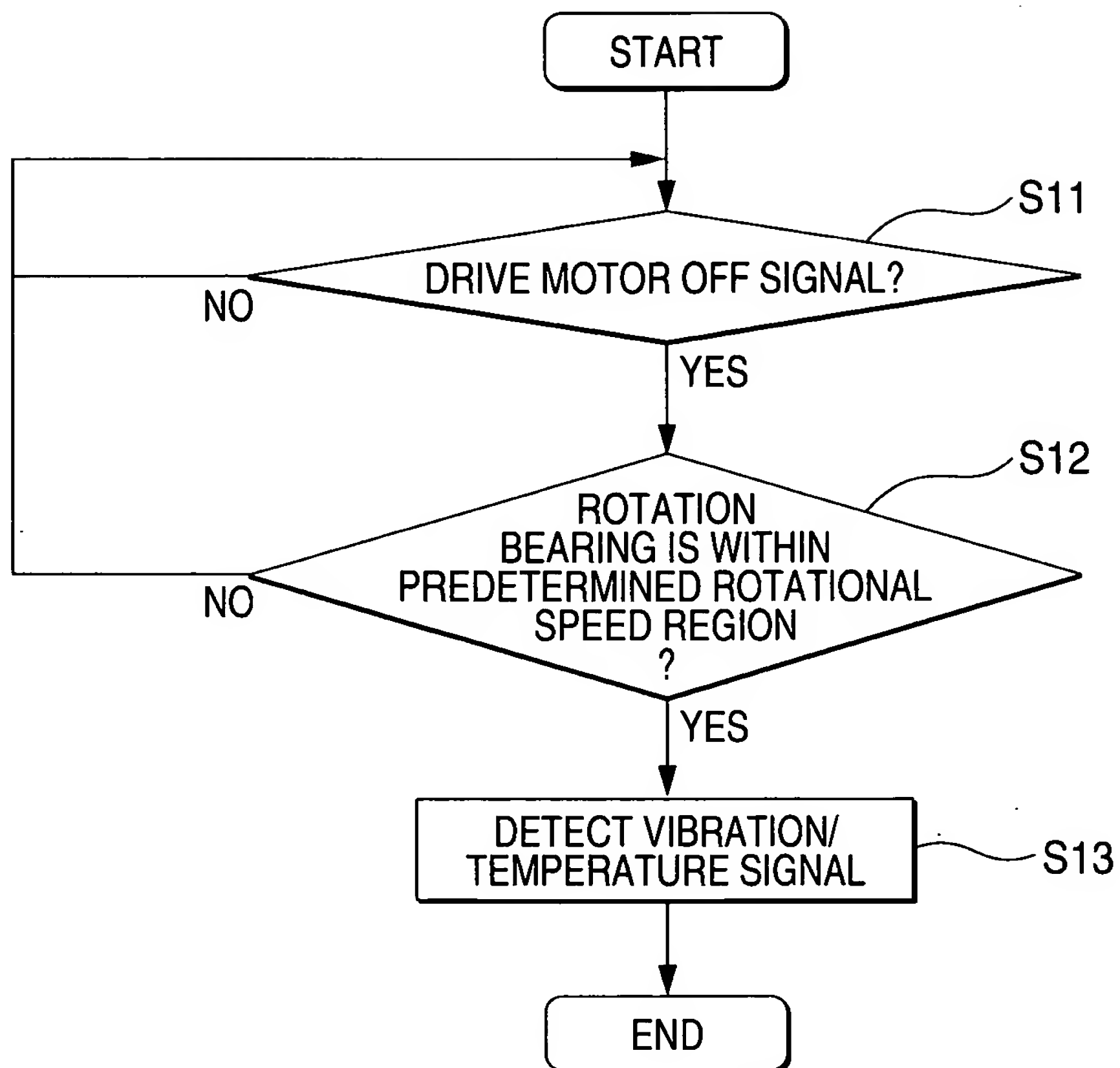


FIG. 9

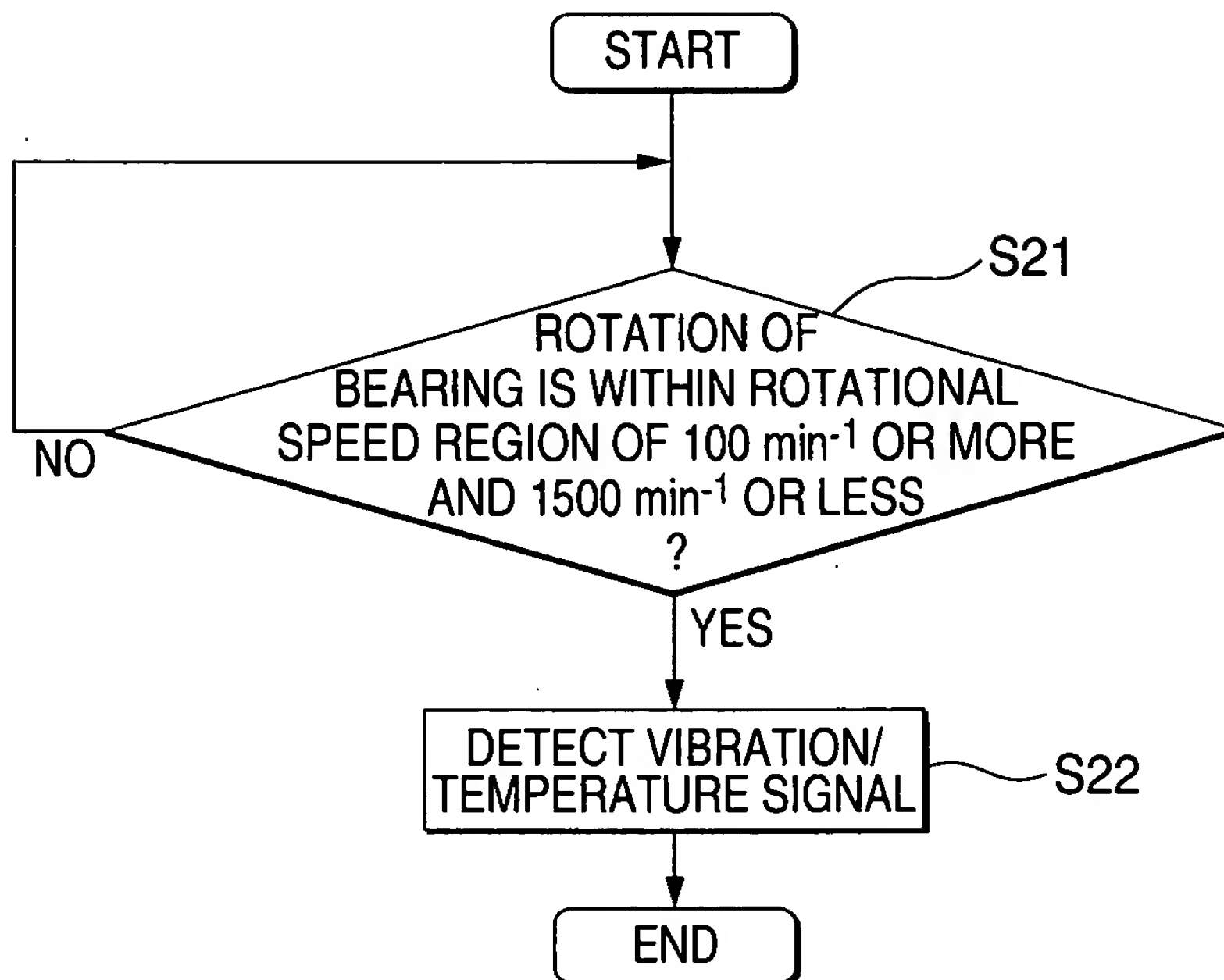


FIG. 10

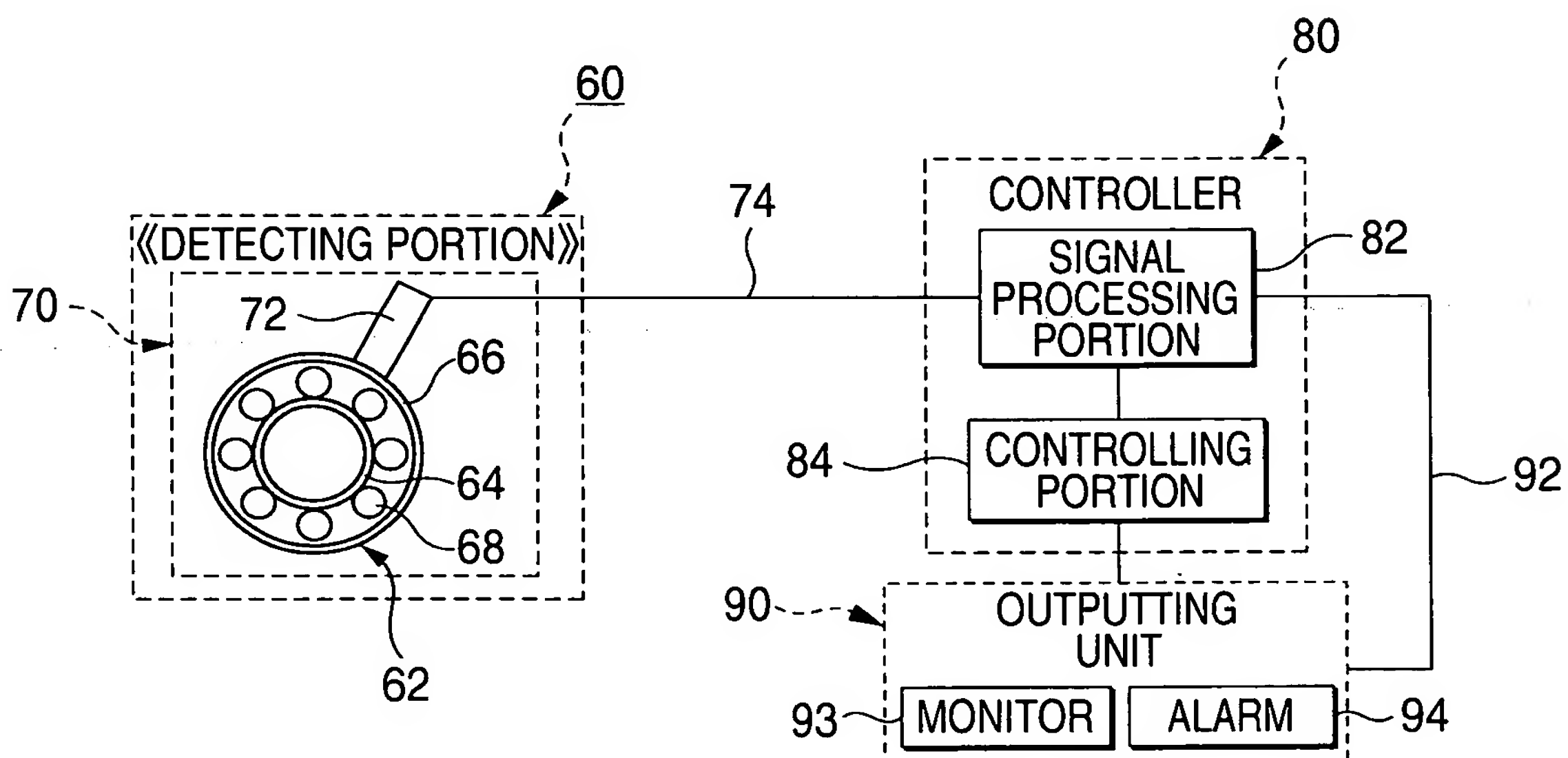
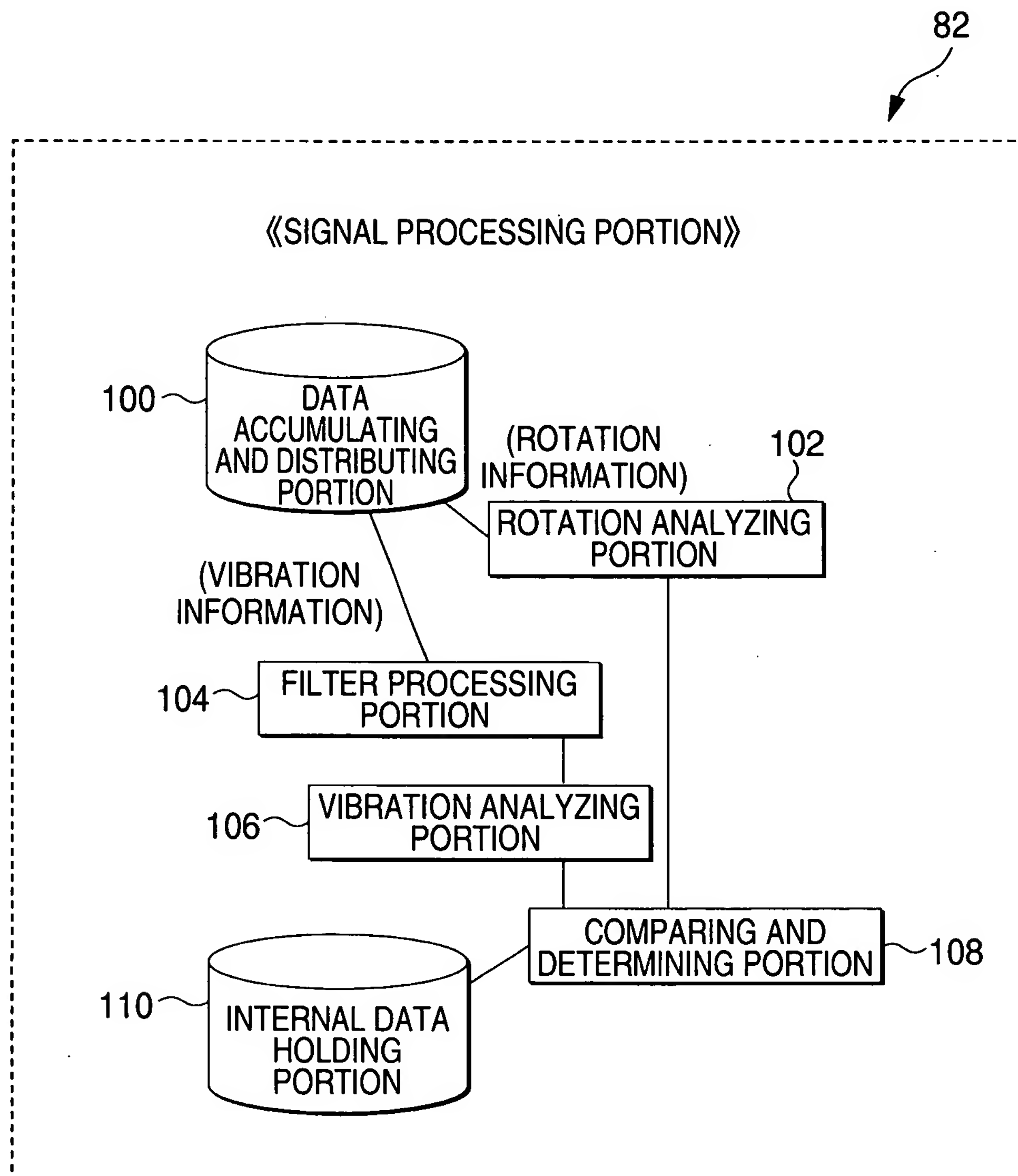




FIG. 11





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FIG. 12

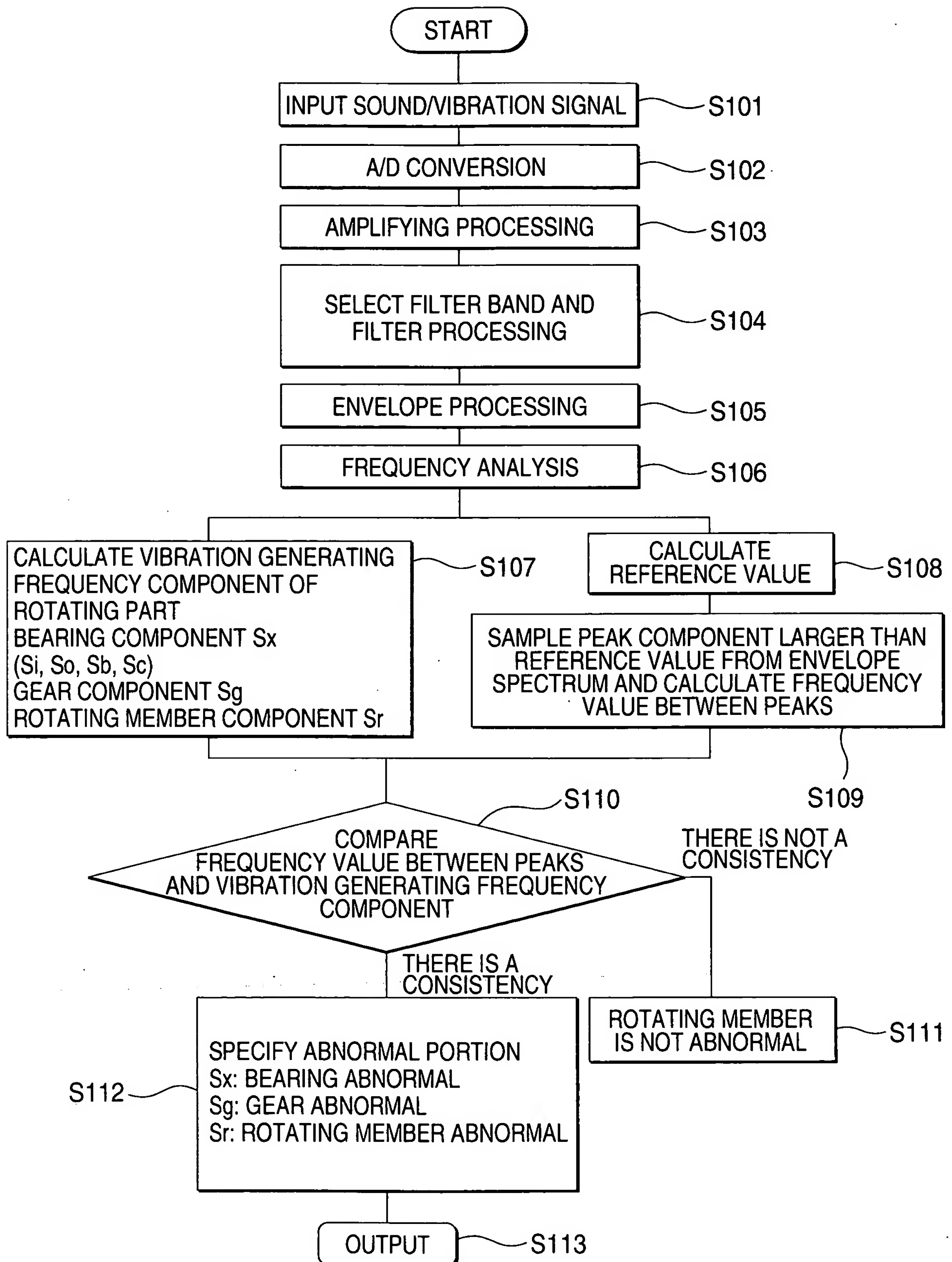
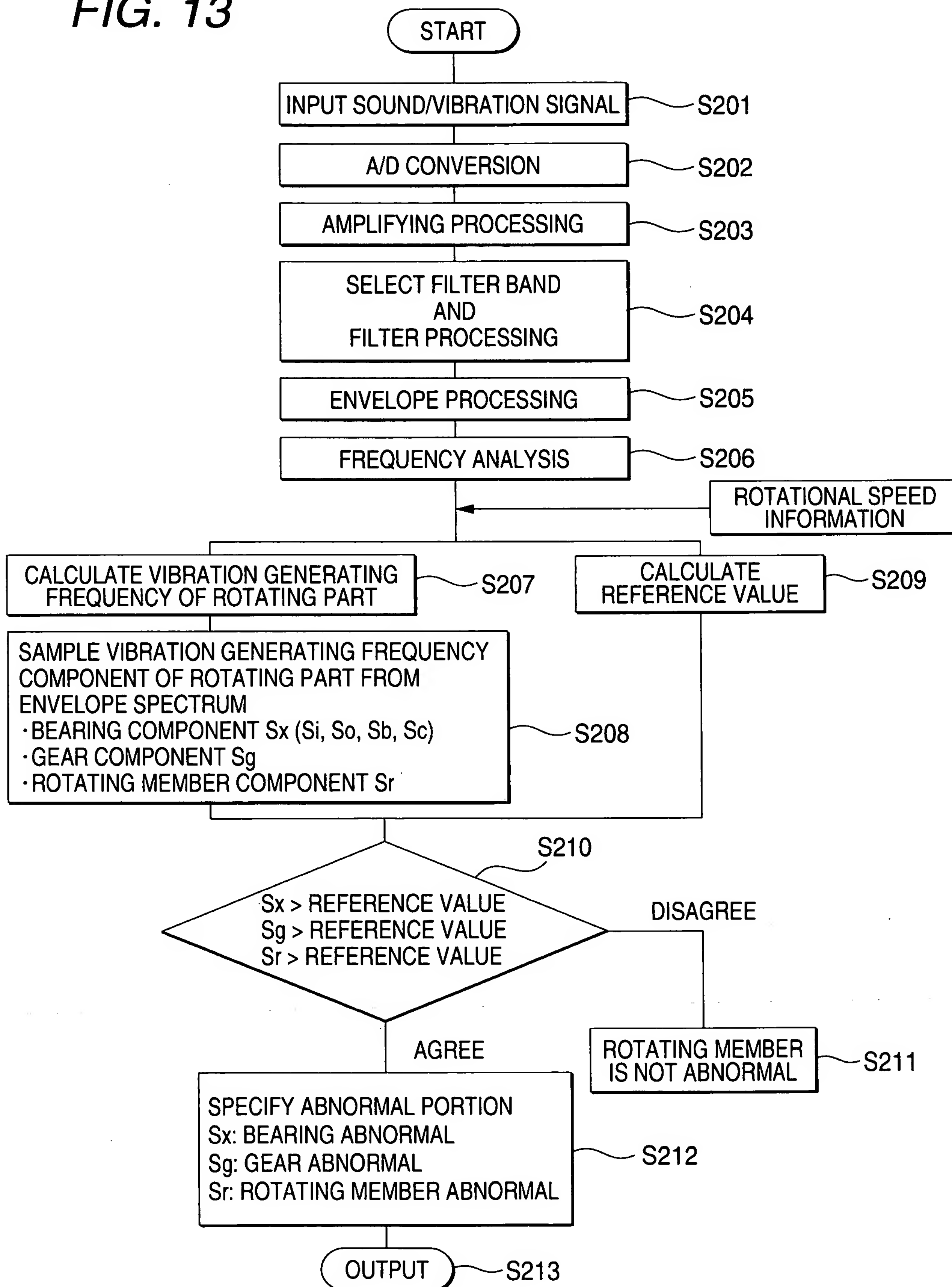




FIG. 13





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FIG. 14

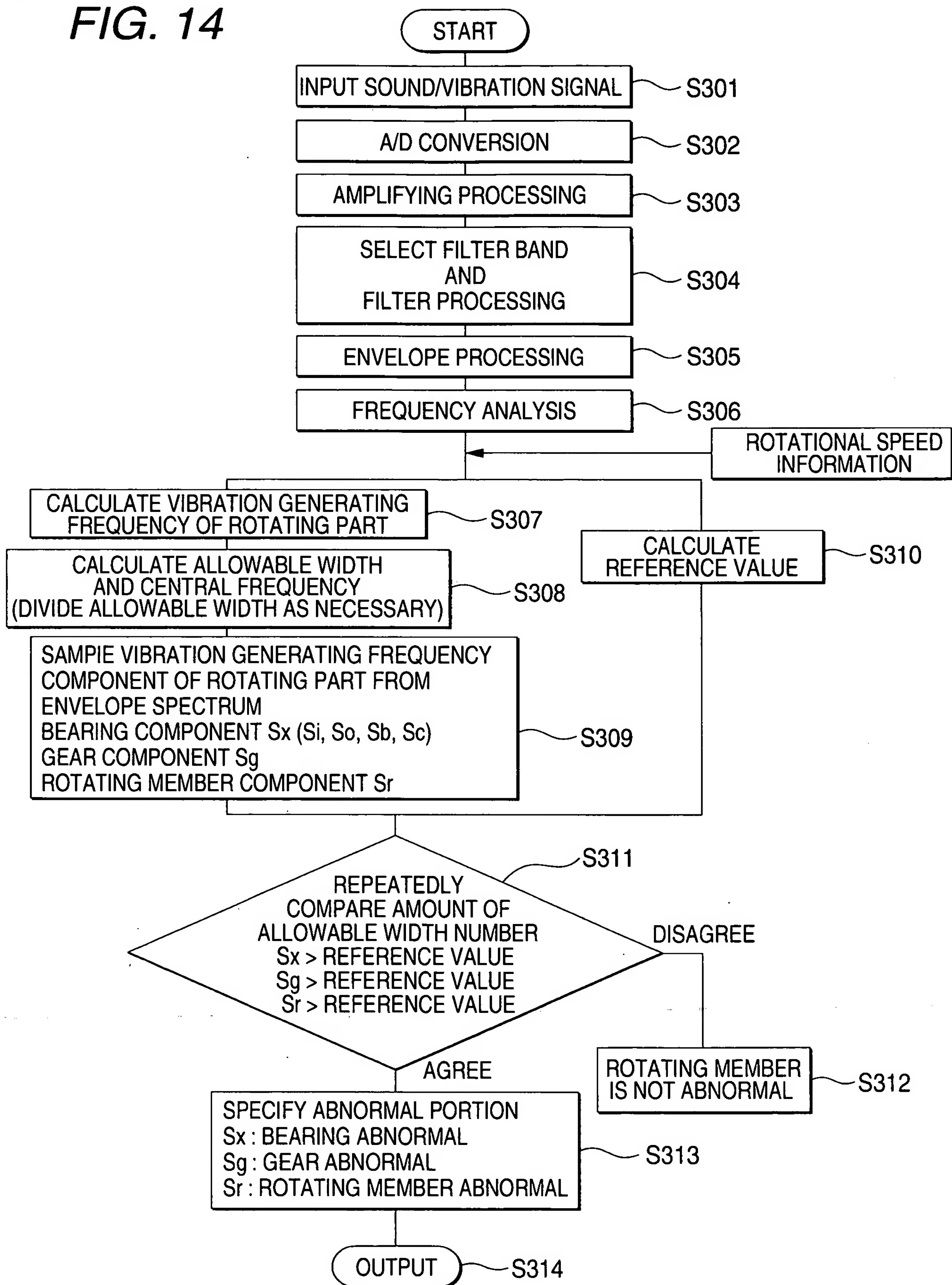




FIG. 15

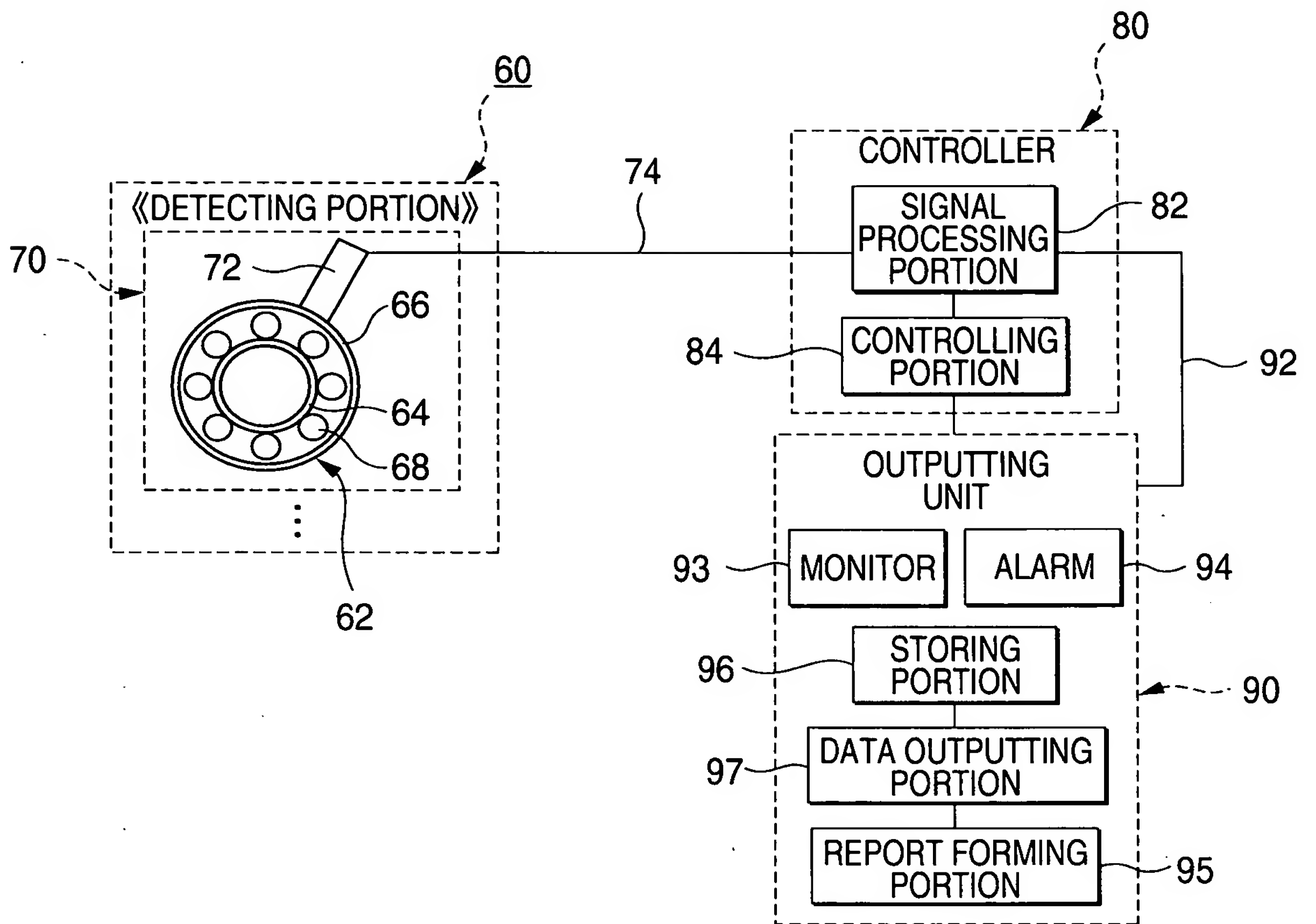




FIG. 16

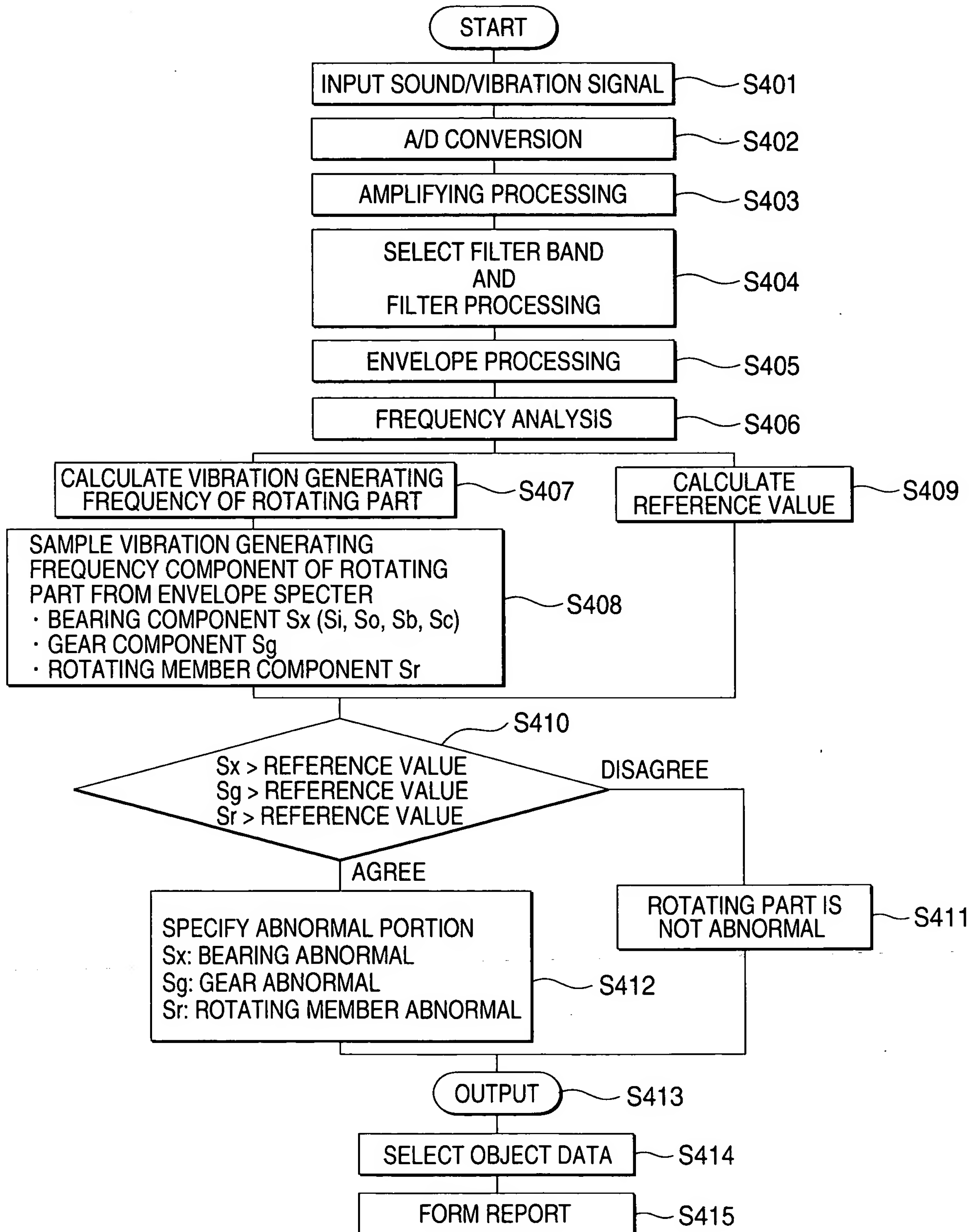


FIG. 17

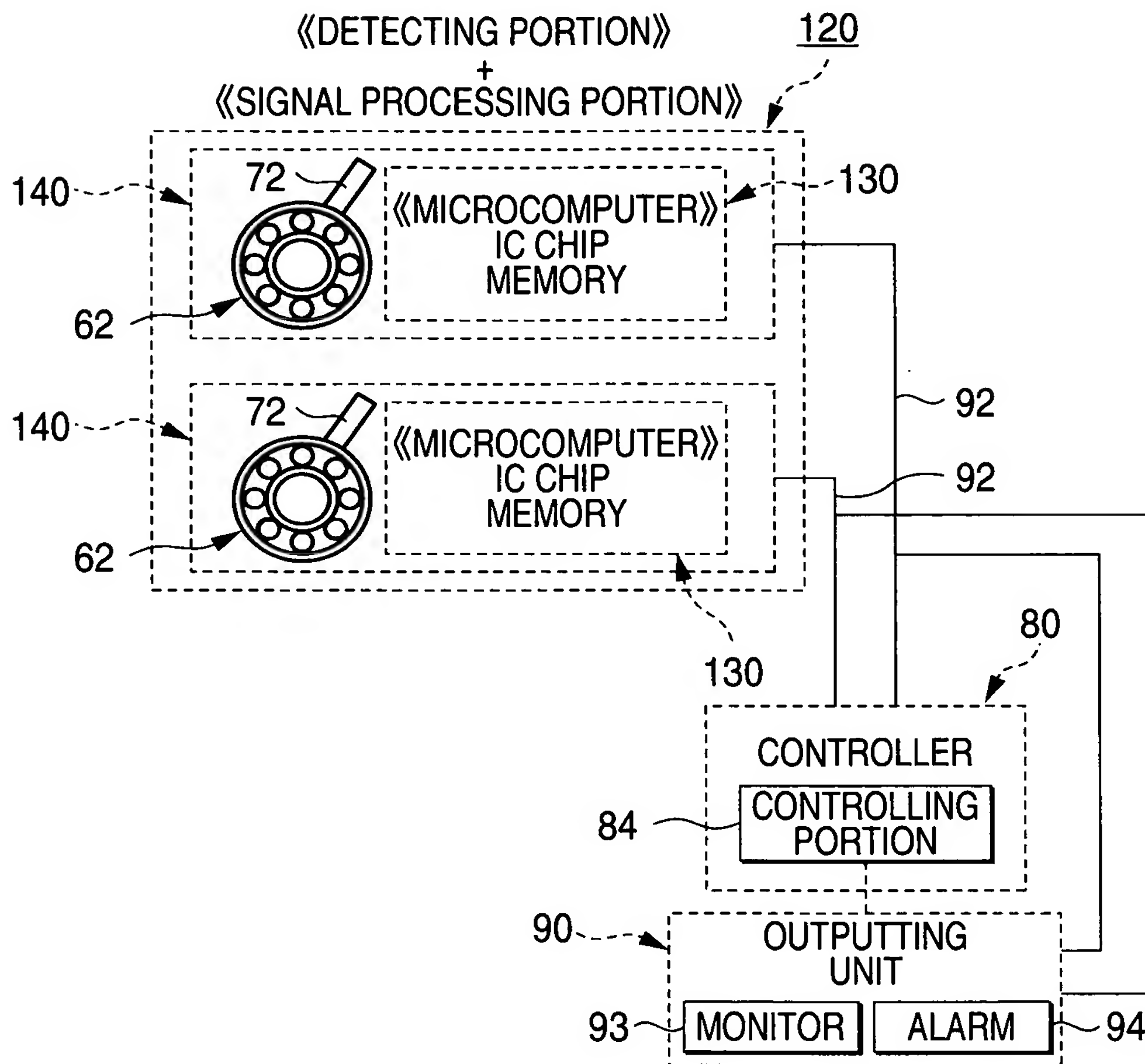


FIG. 18

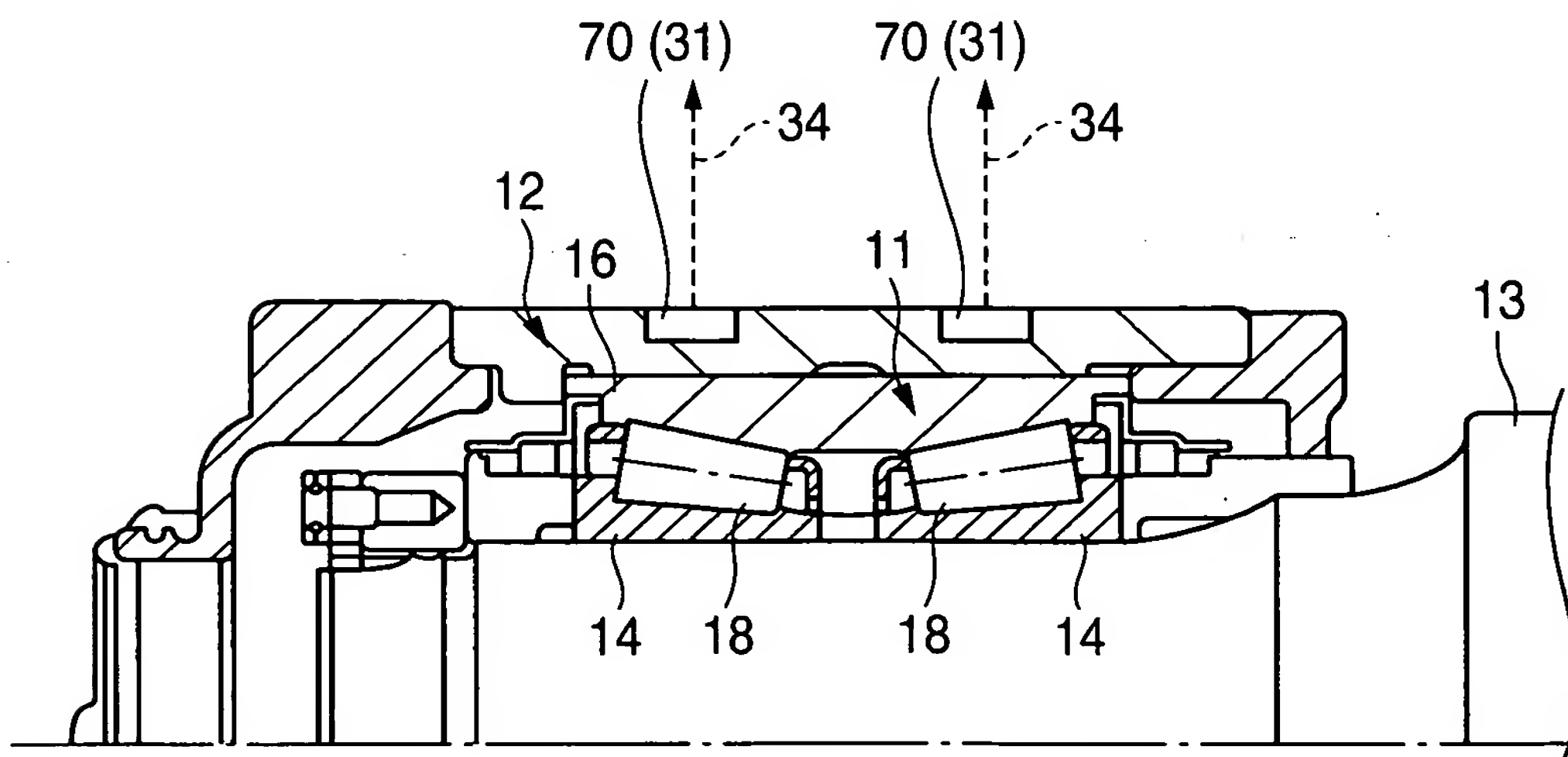
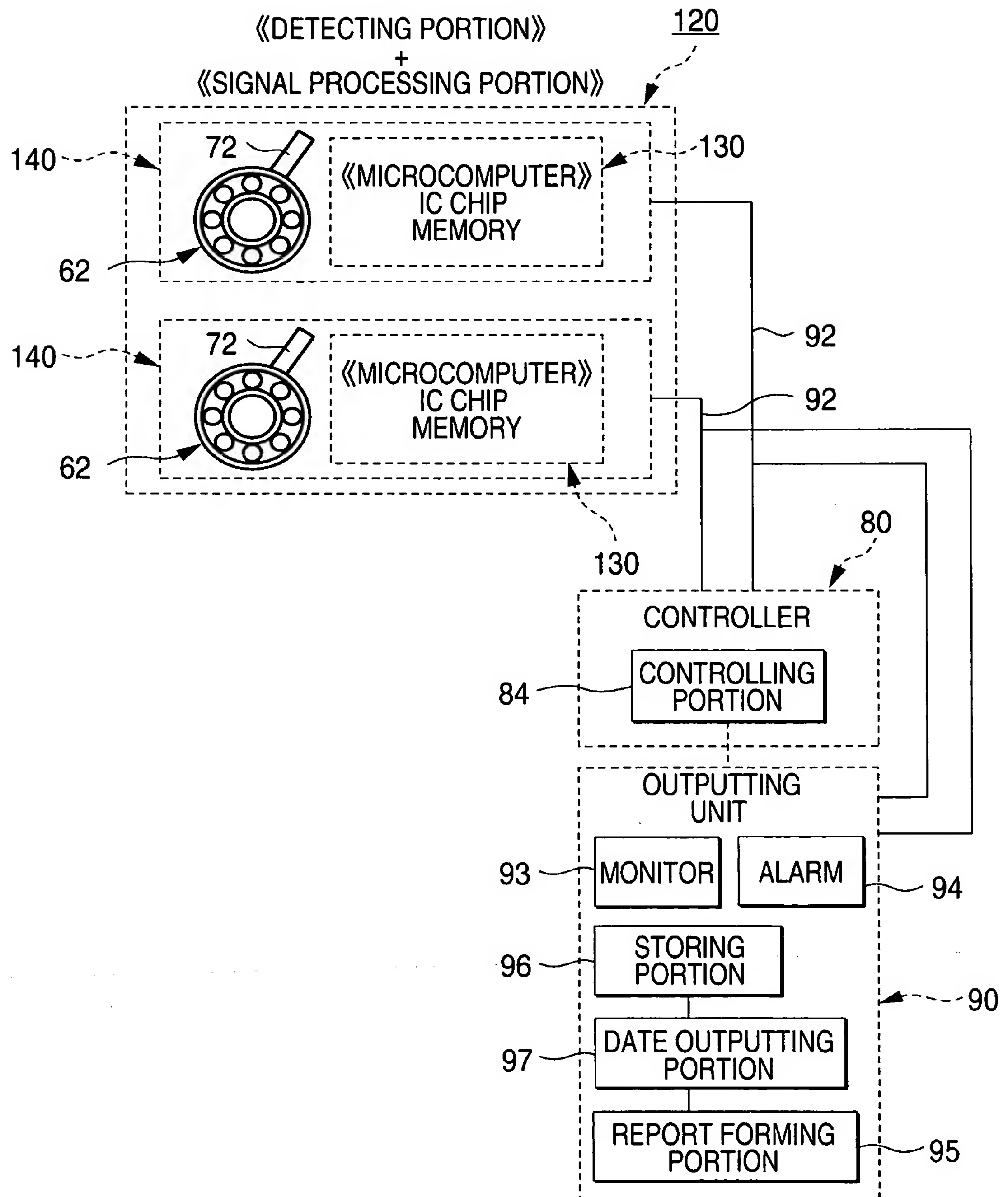




FIG. 19



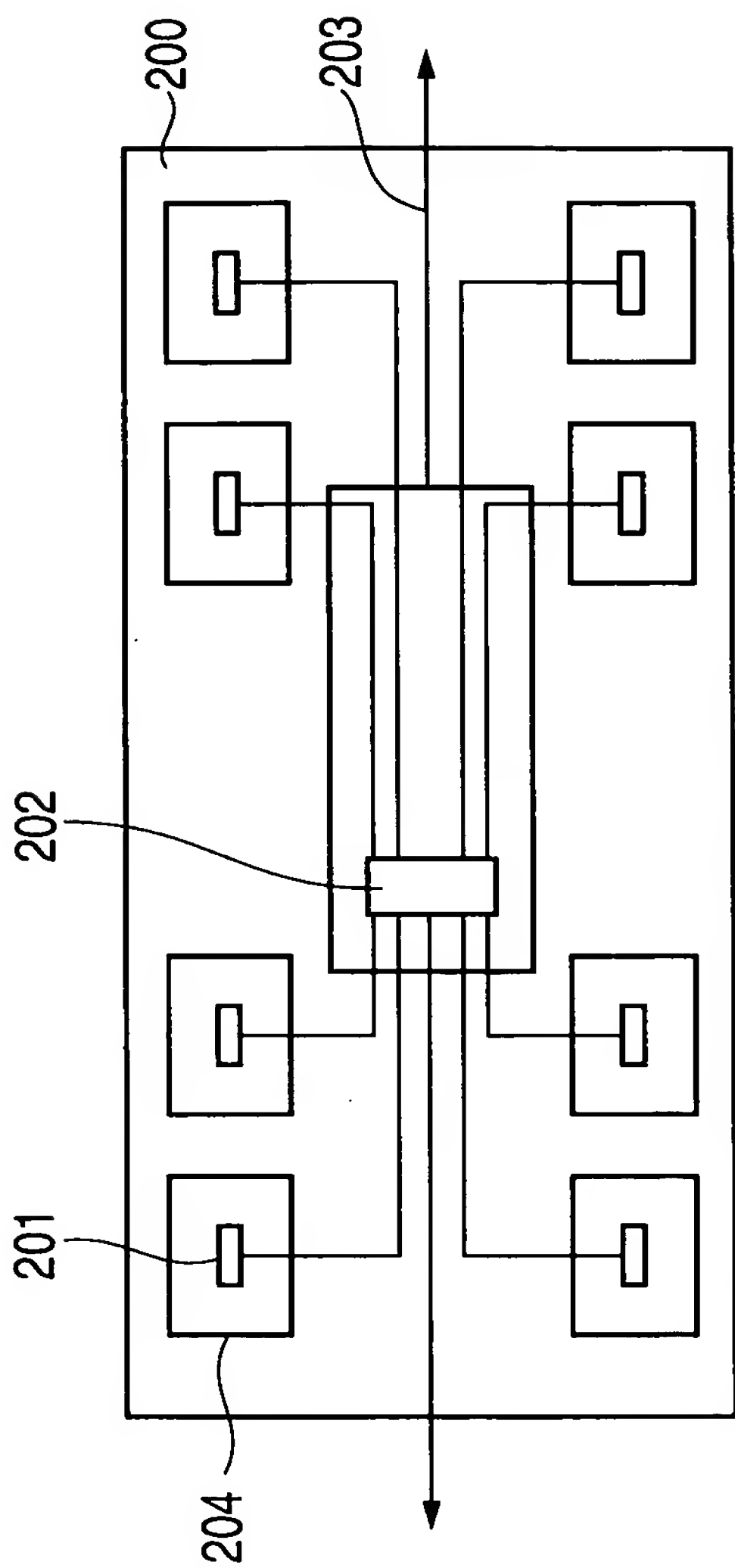


FIG. 20 (a)

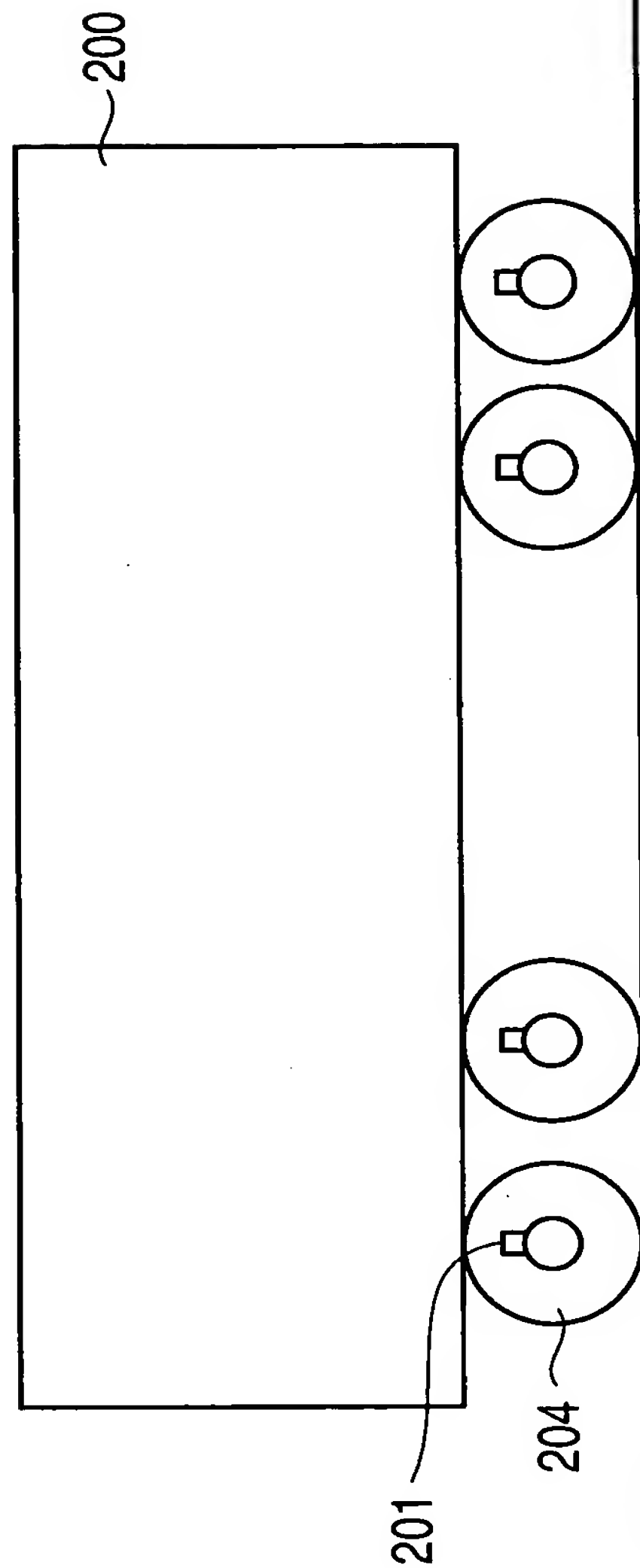


FIG. 20 (b)



FIG. 21

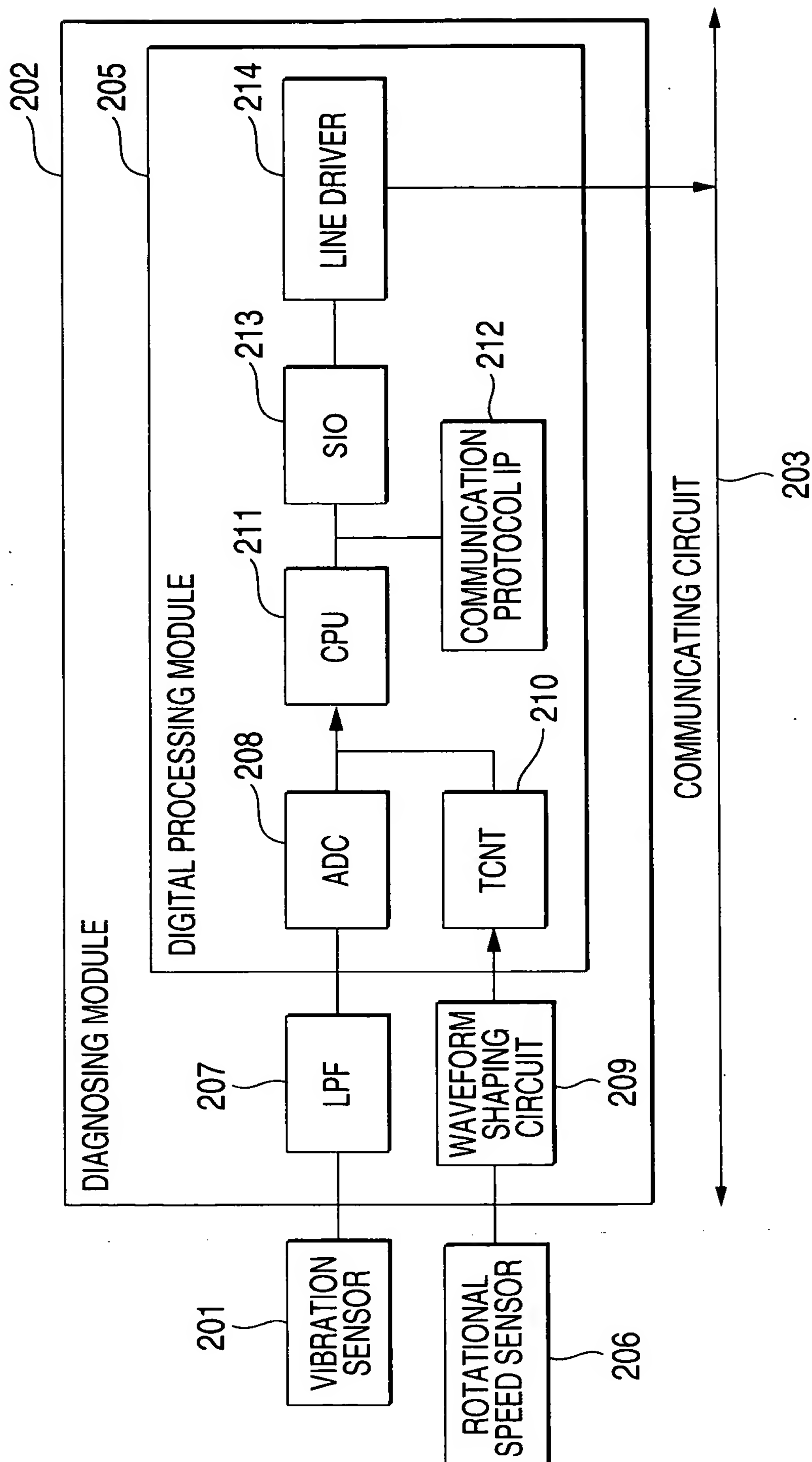
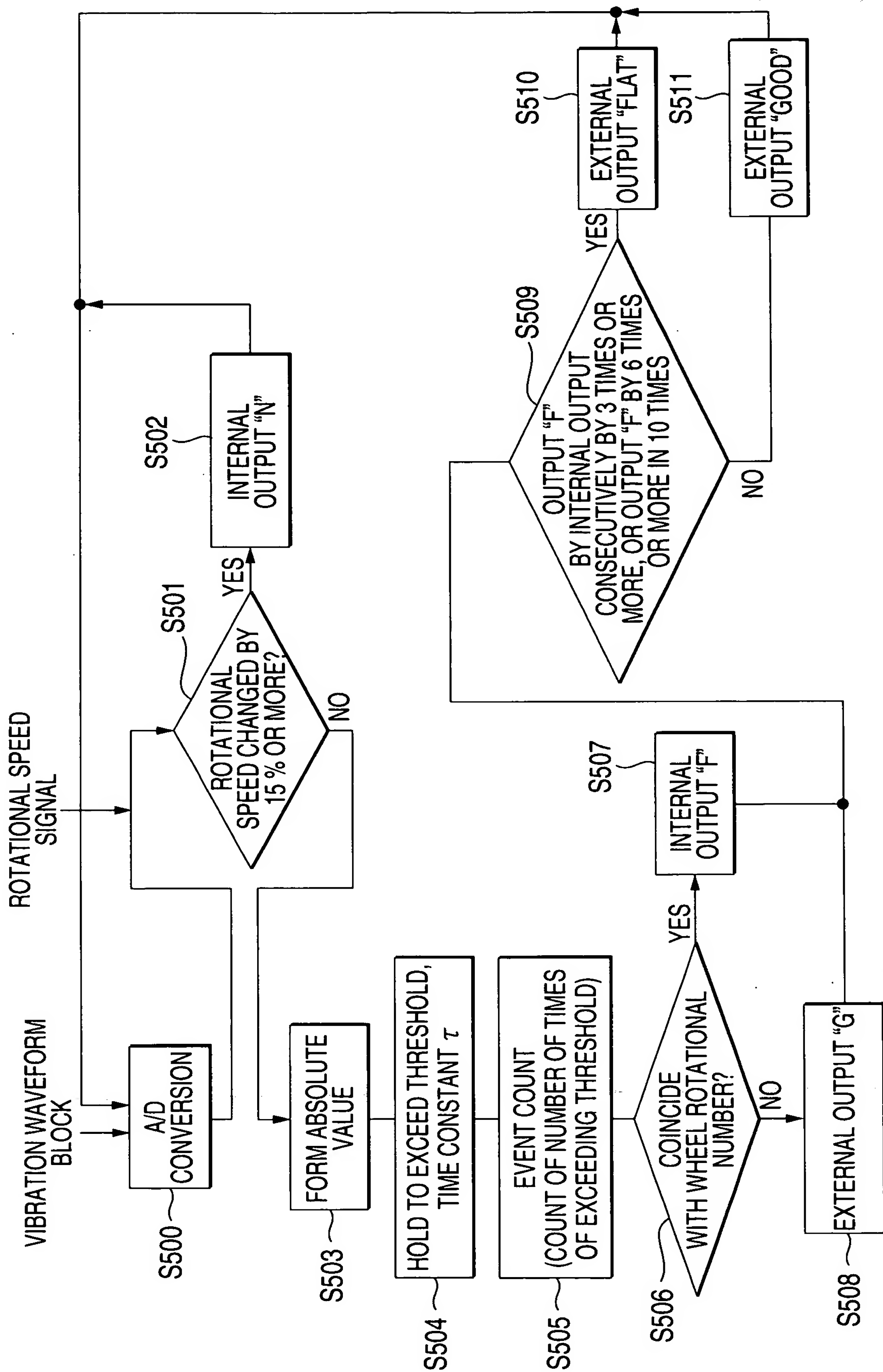


FIG. 22





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FIG. 23A

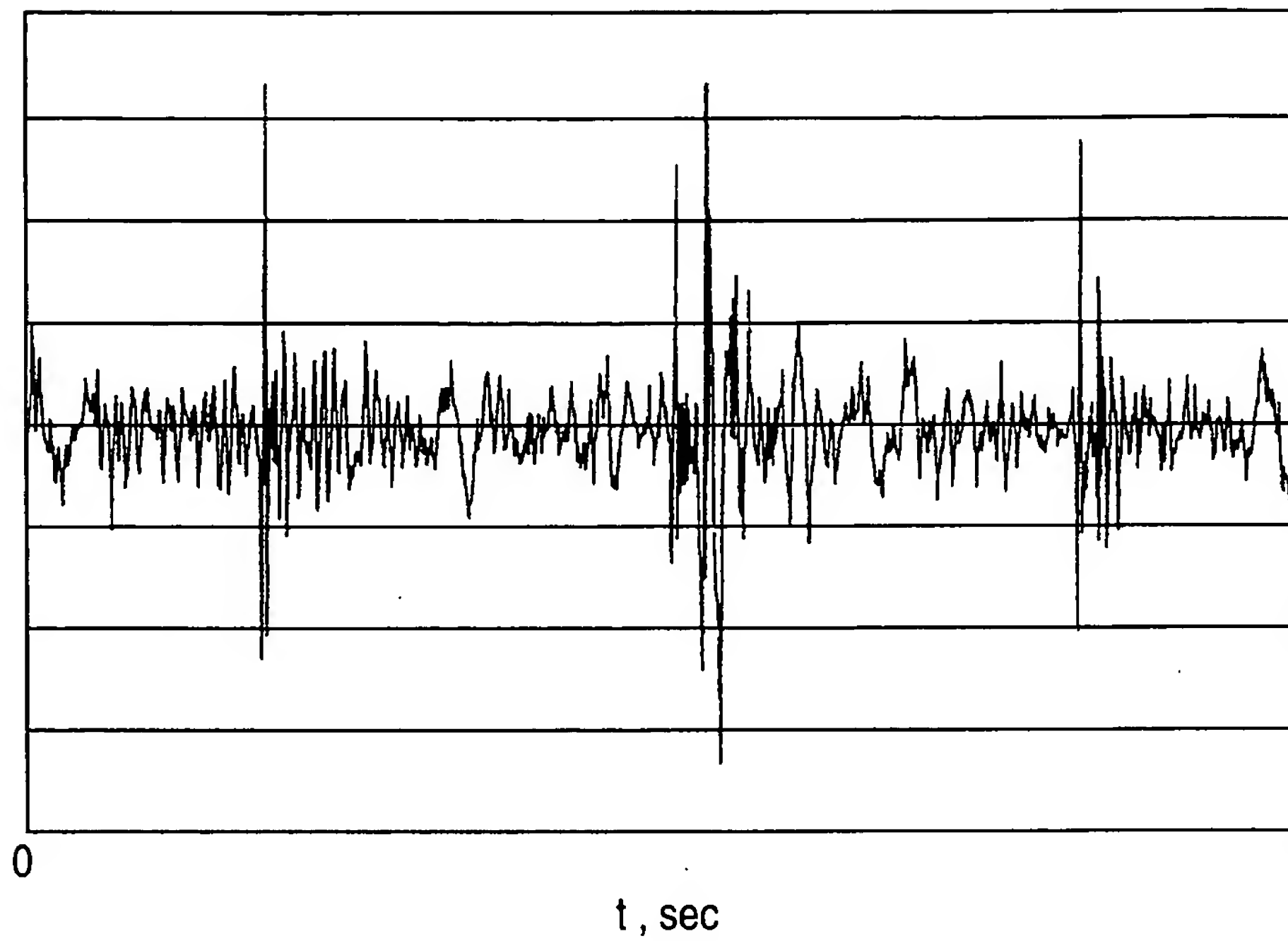


FIG. 23B

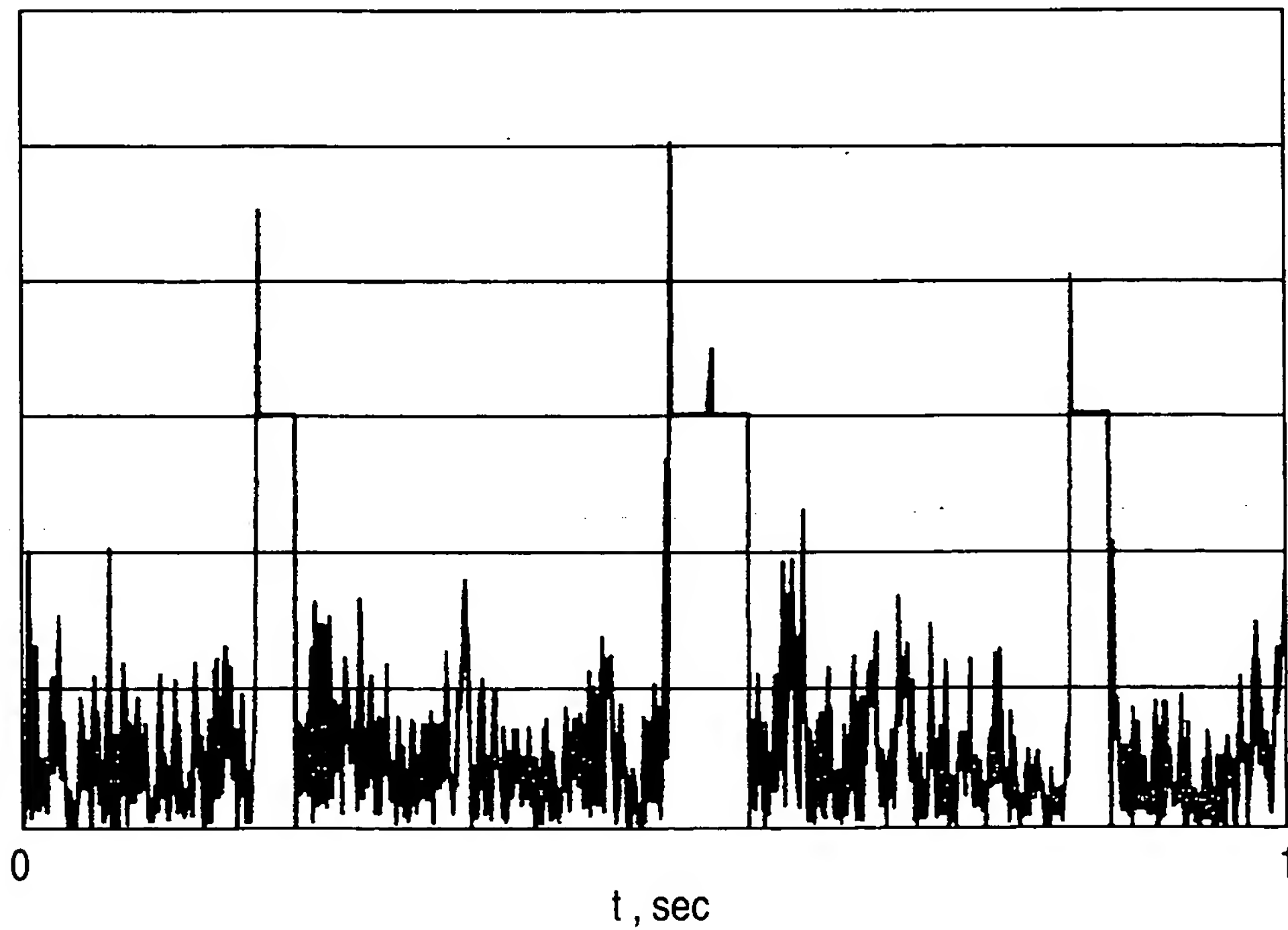




FIG. 24

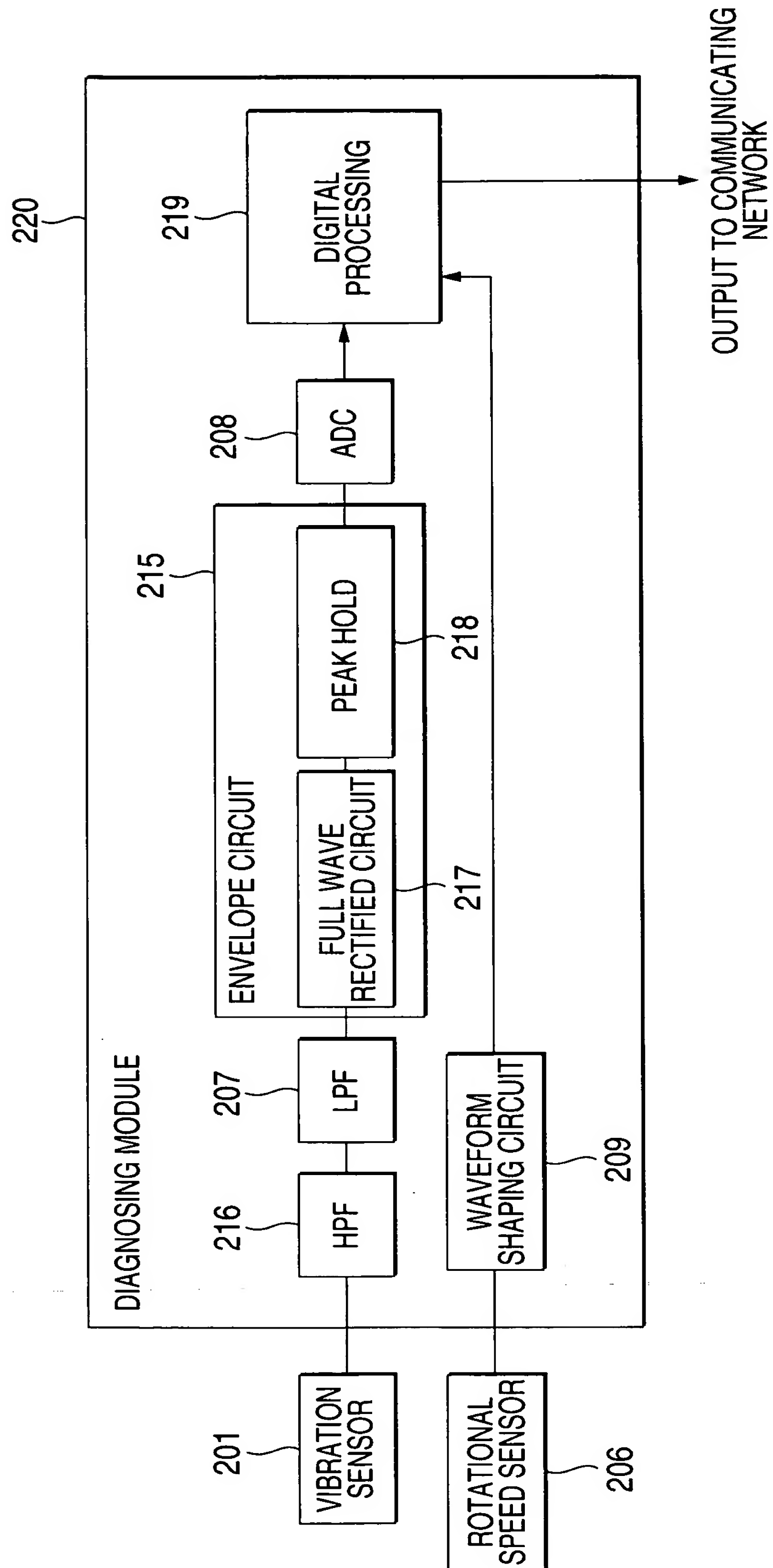




FIG. 25

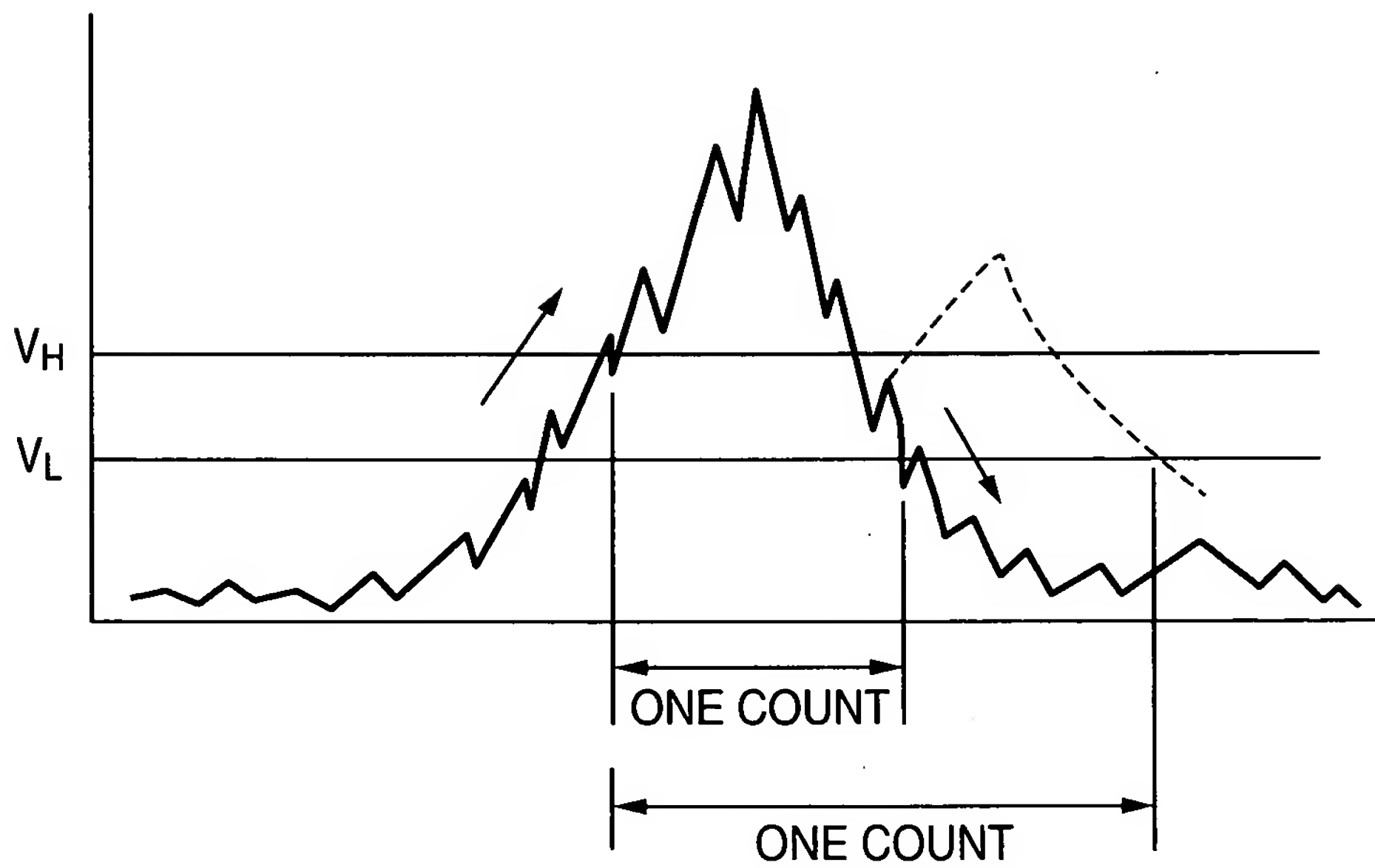




FIG. 26

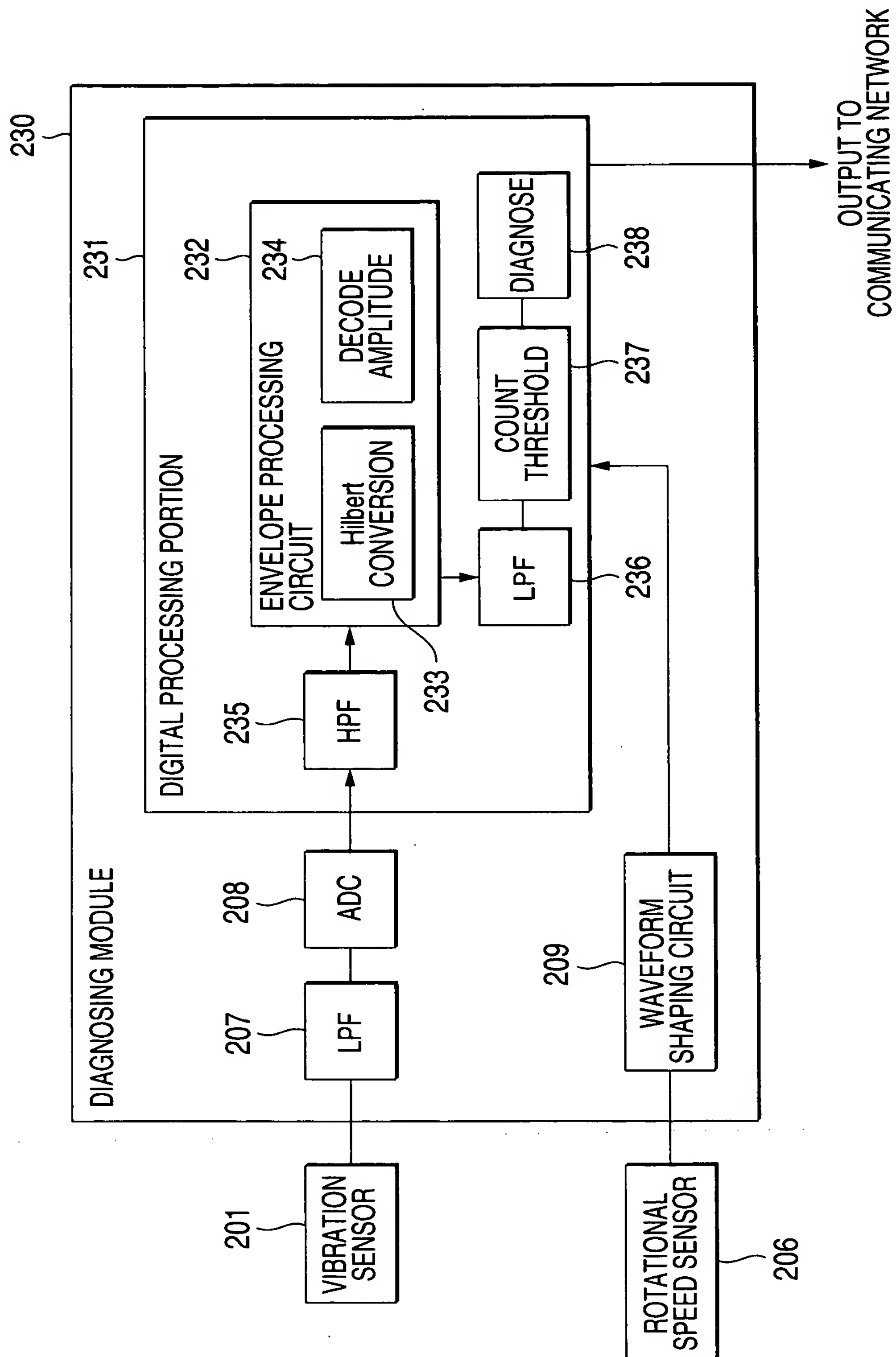




FIG. 27A

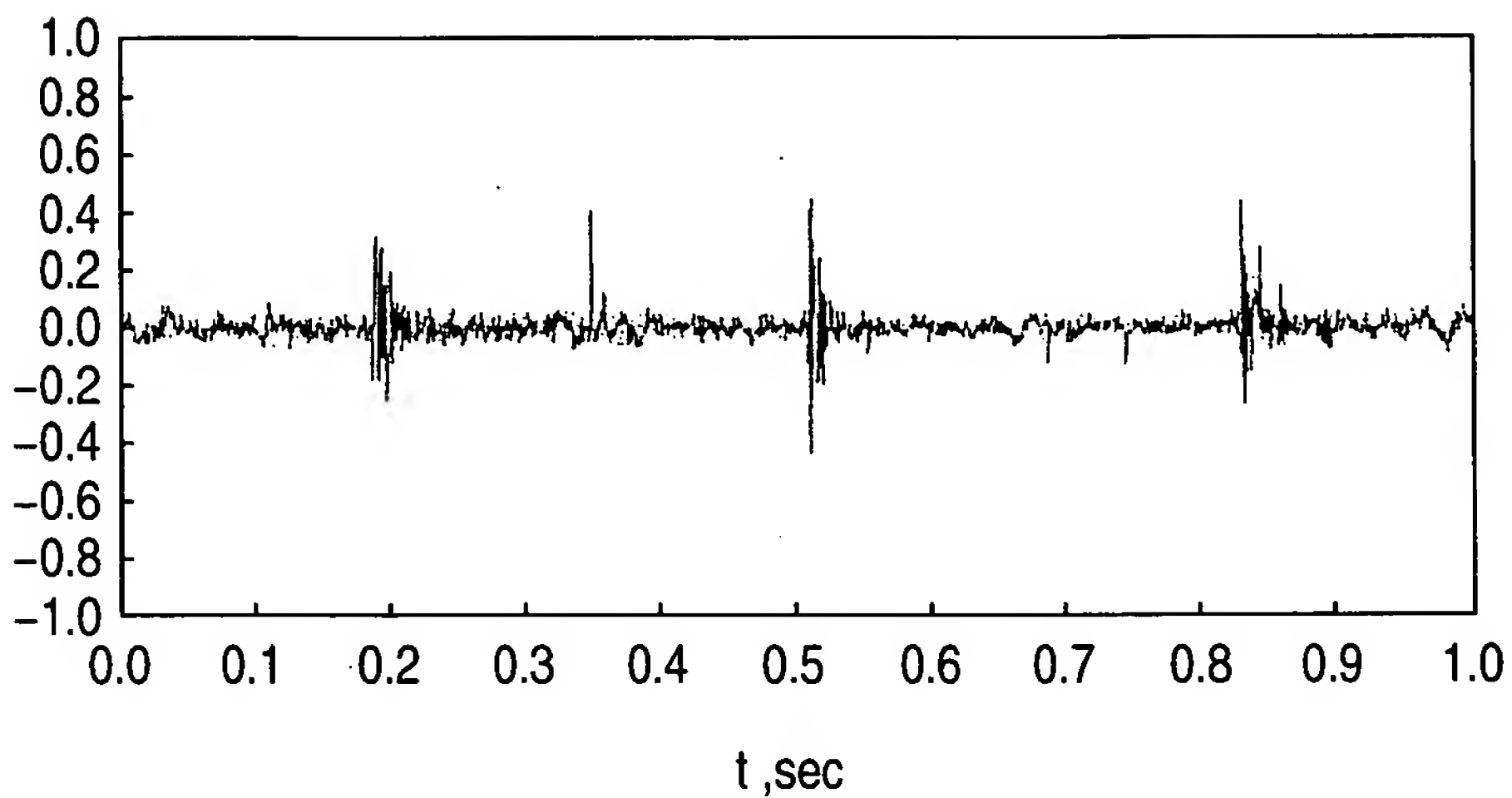
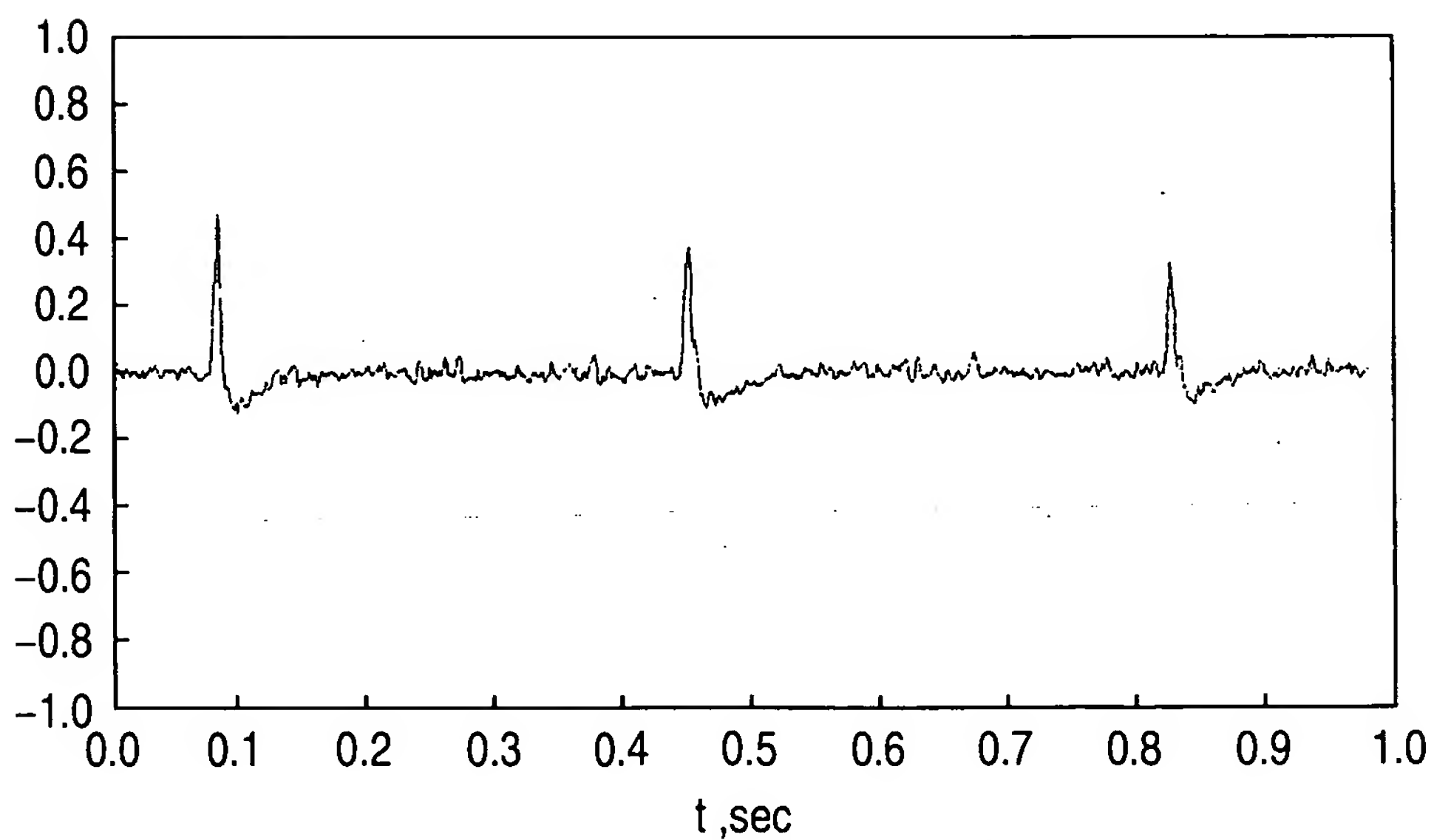


FIG. 27B



SHOCK WAVES ARE GENERATED BY THREE TIMES IN ONE SECOND



FIG. 28

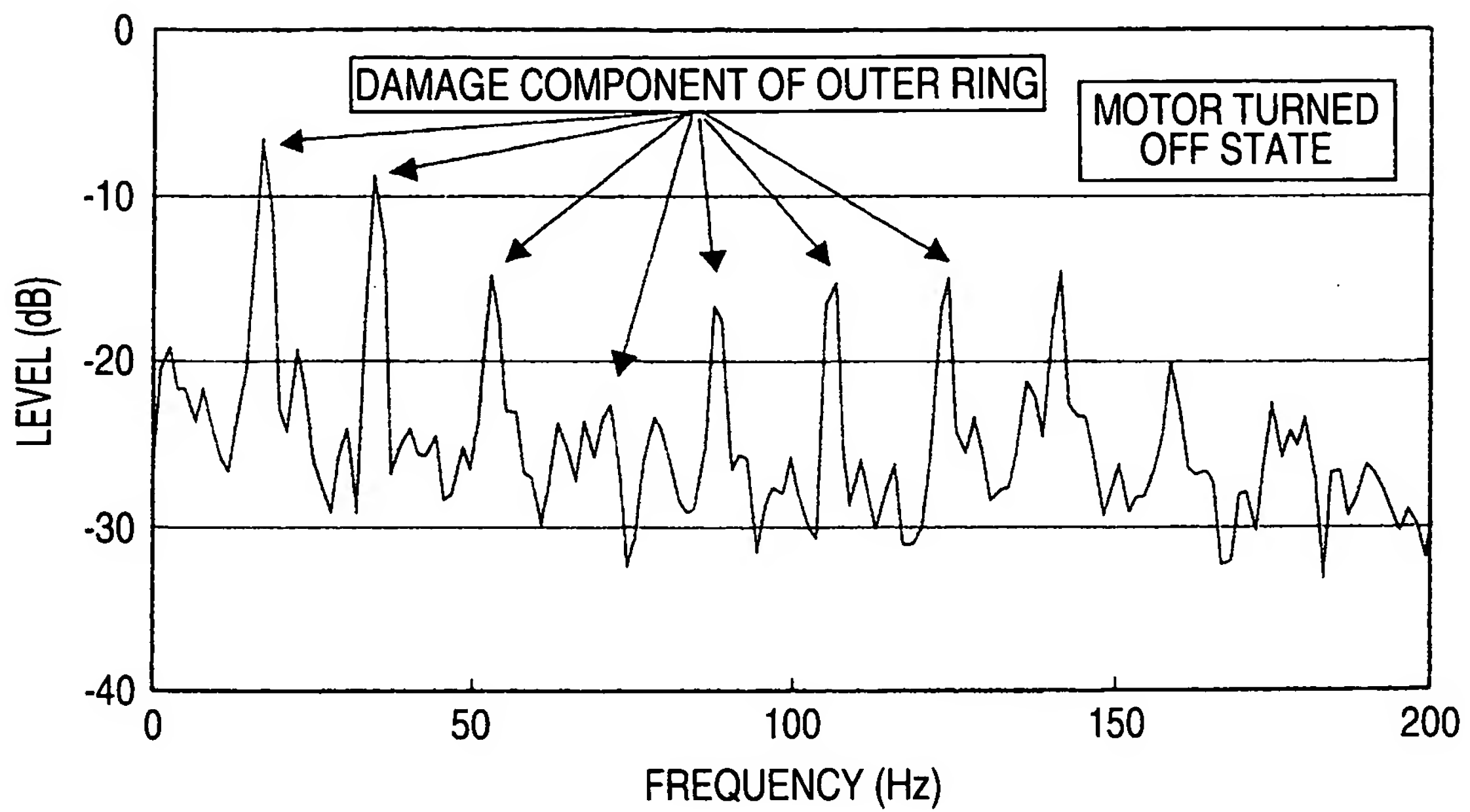


FIG. 29

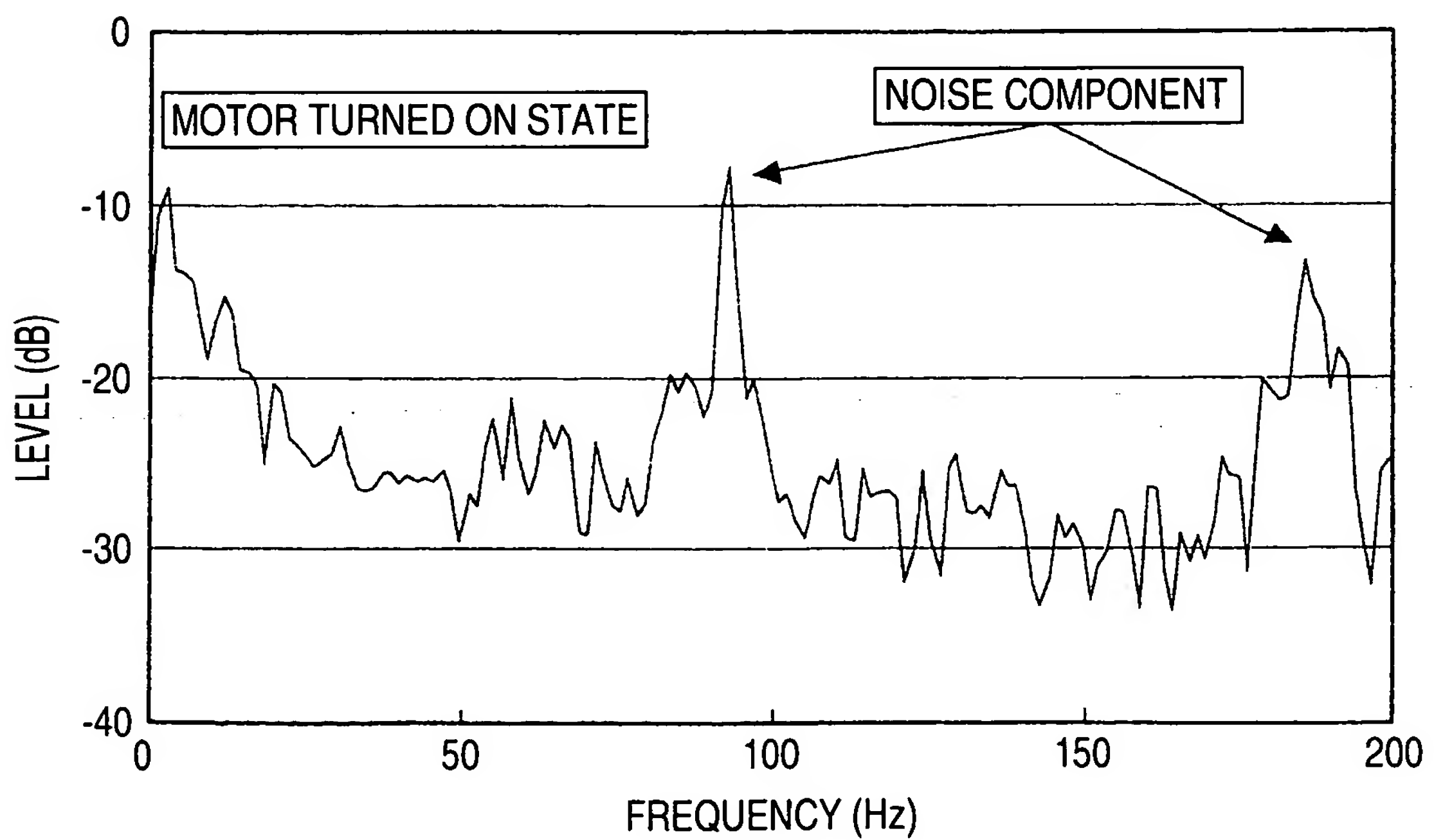


FIG. 30

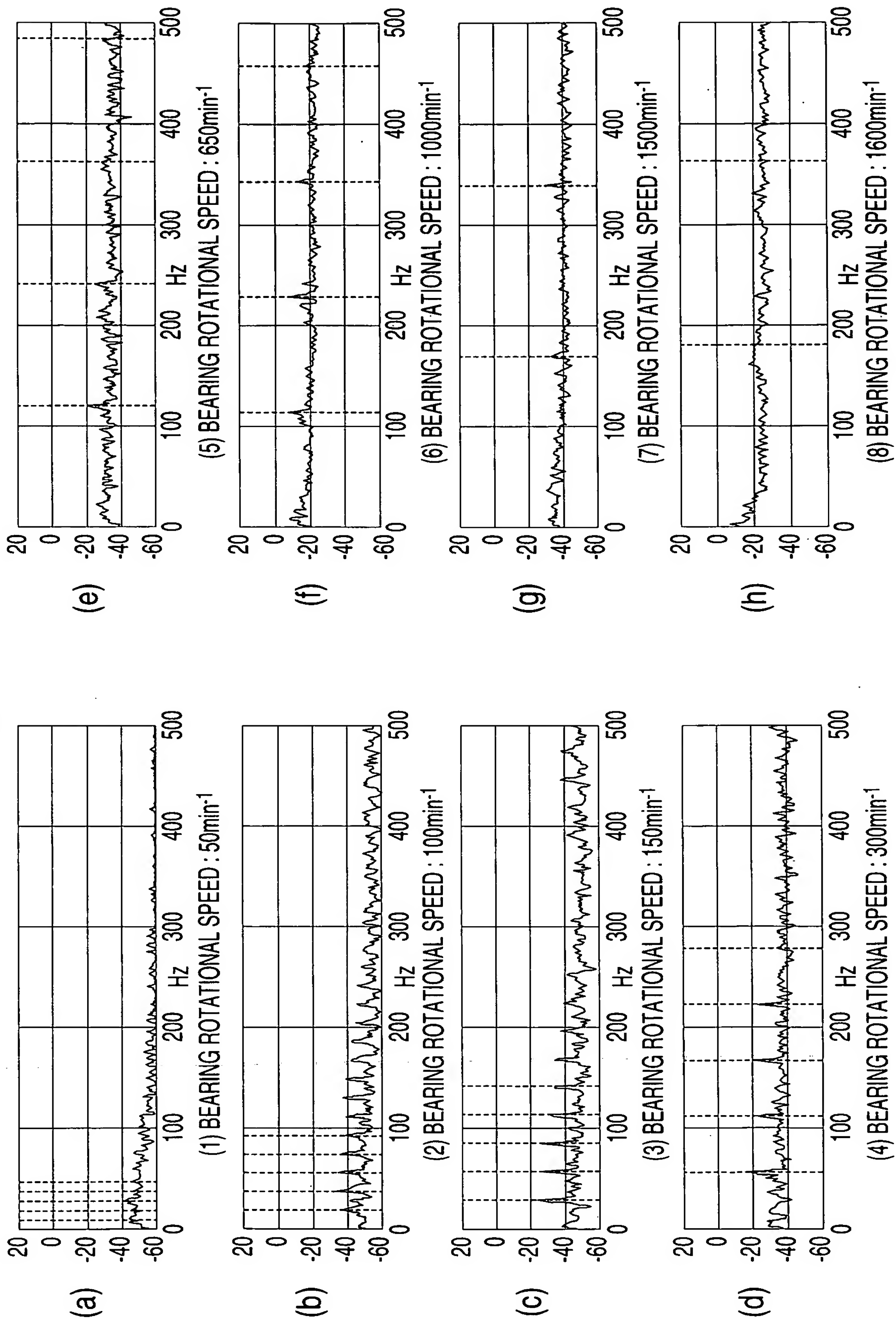




FIG. 31

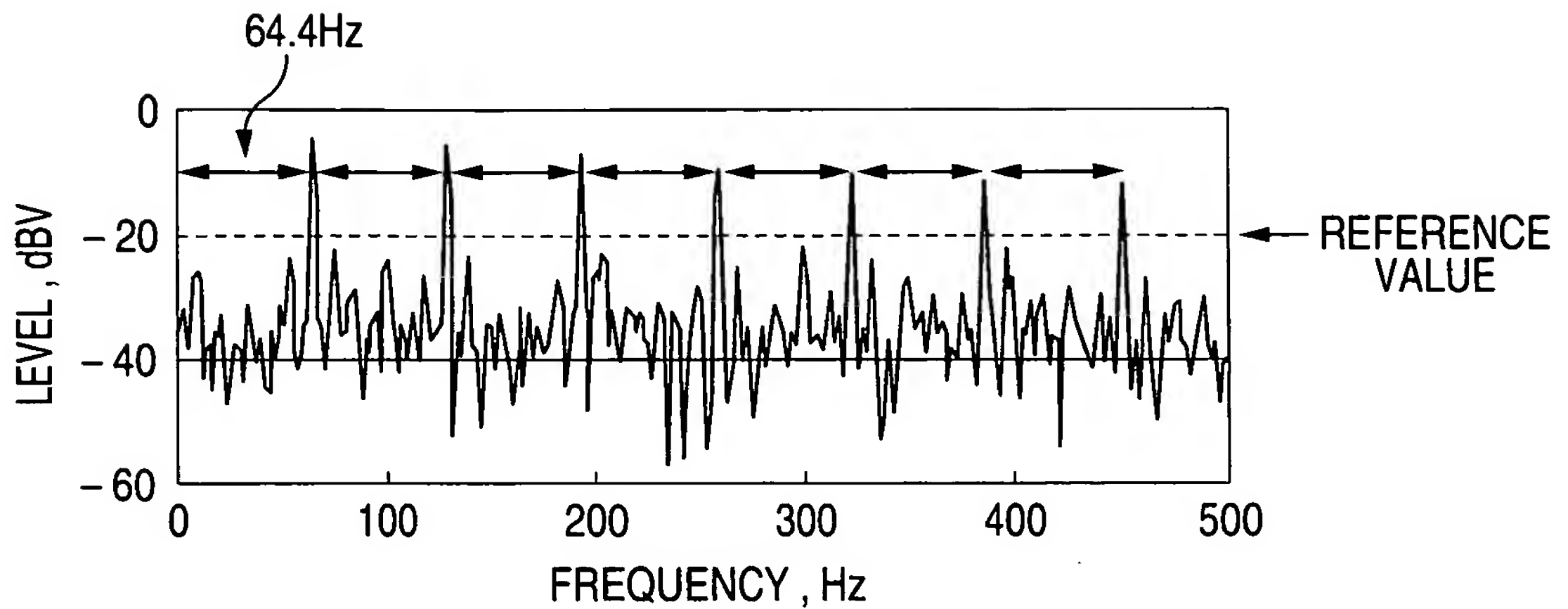


FIG. 32

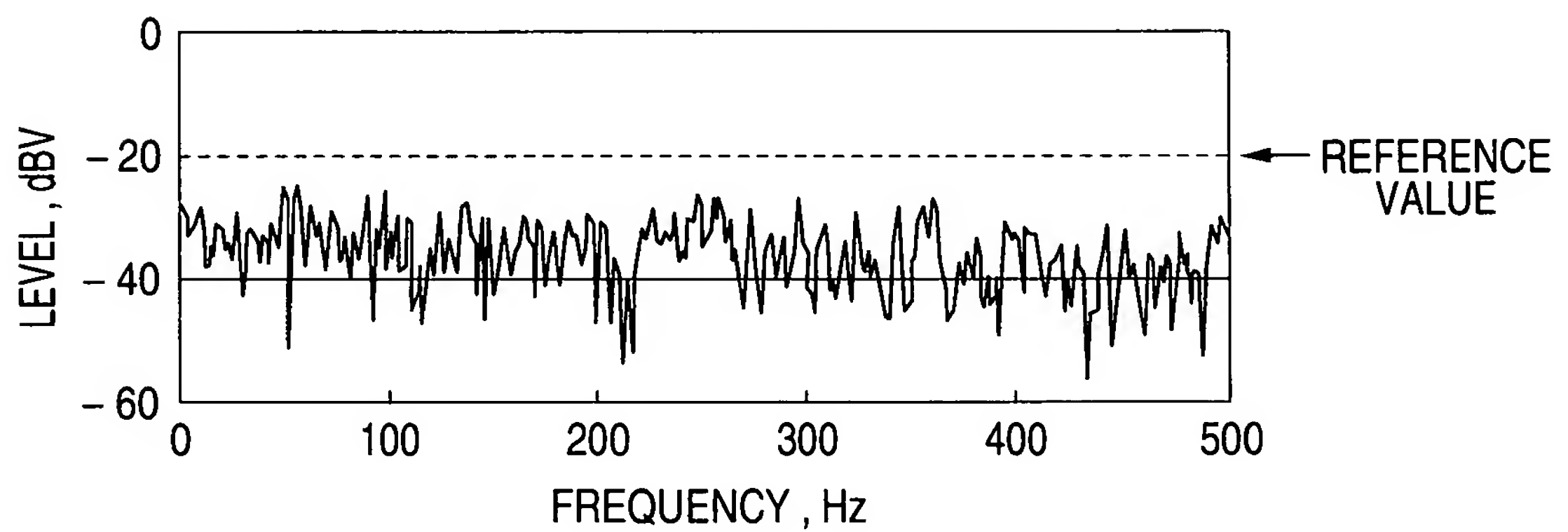


FIG. 33

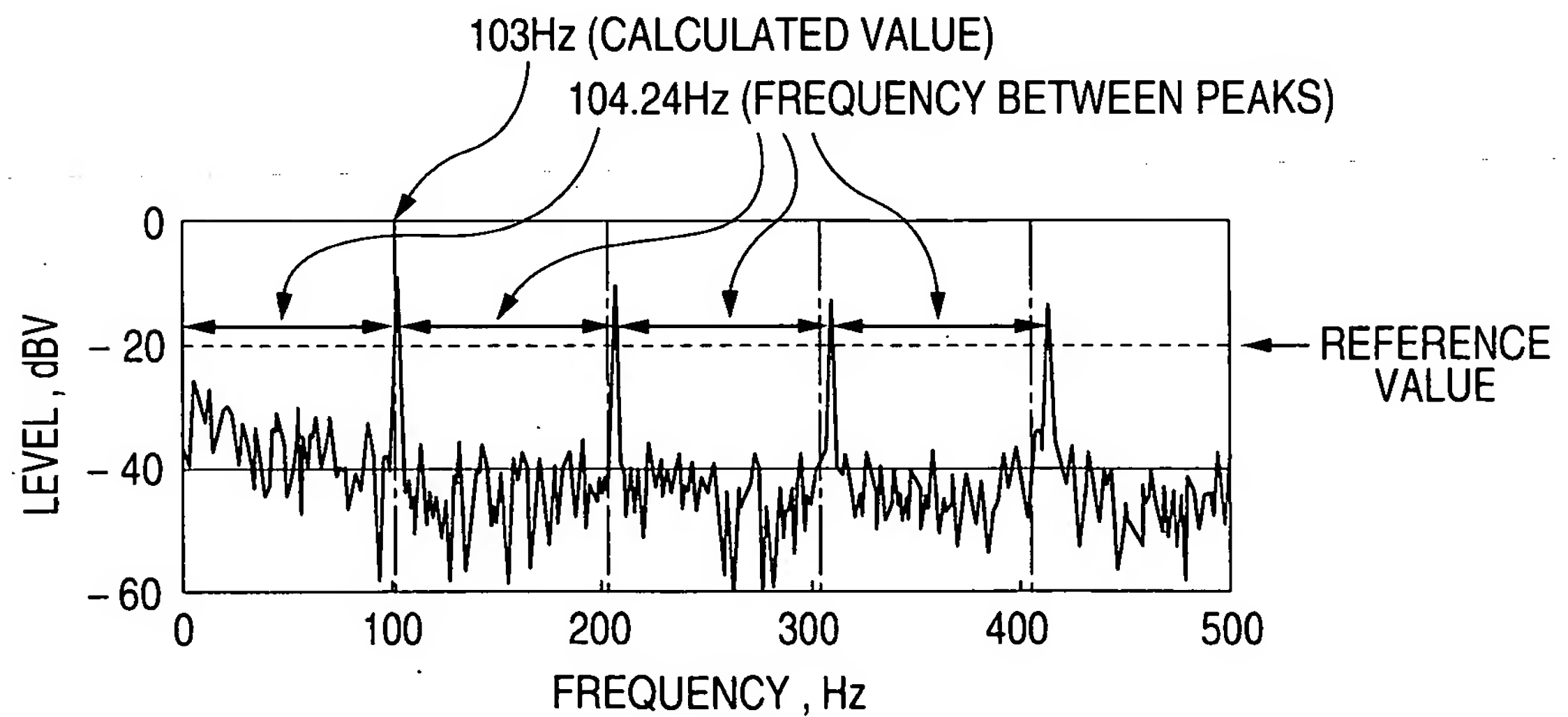




FIG. 34

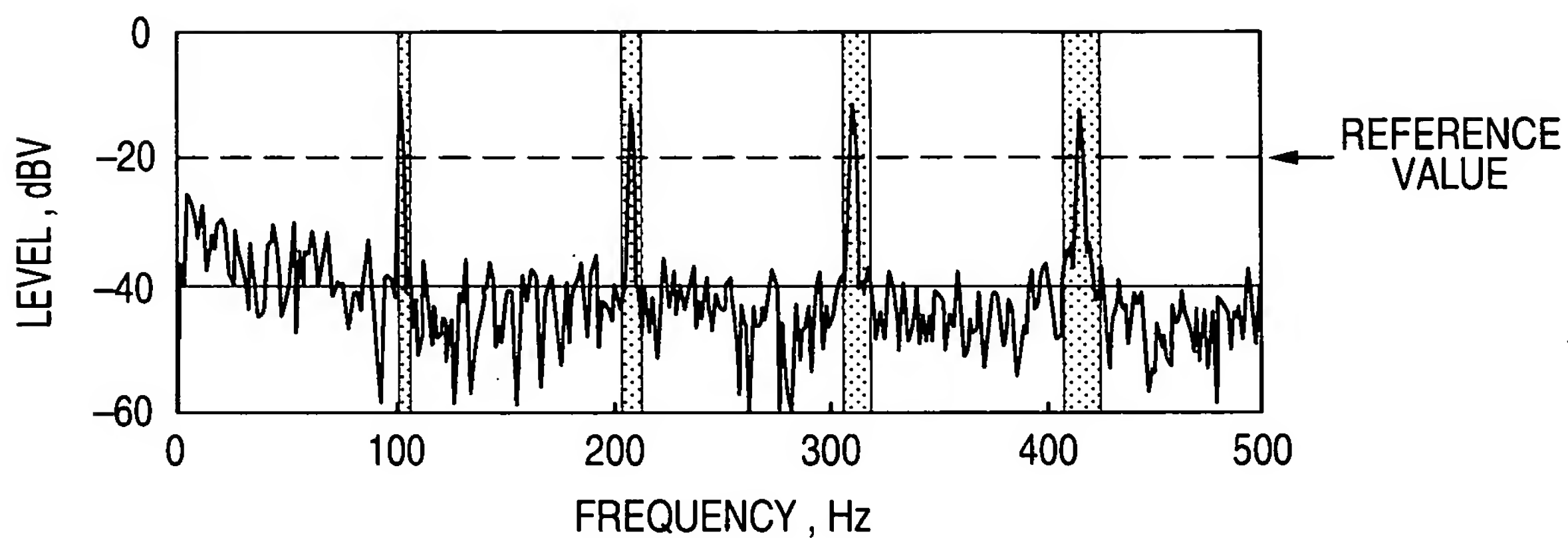


FIG. 35

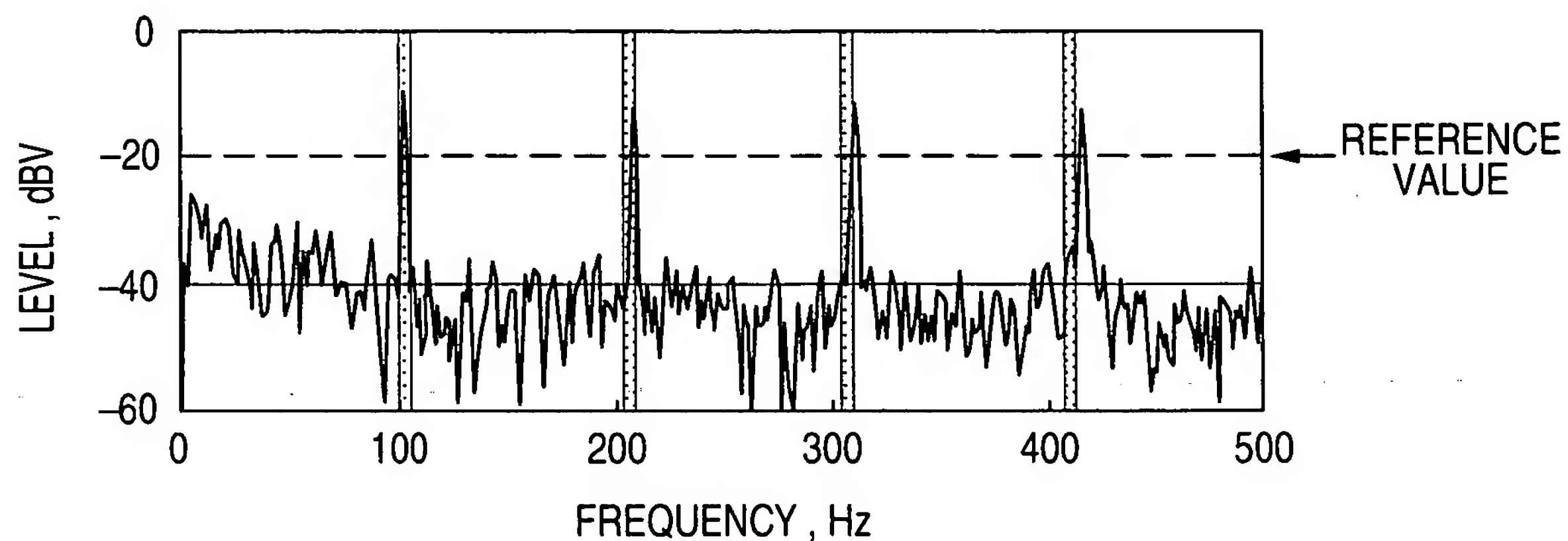




FIG. 36 (a)

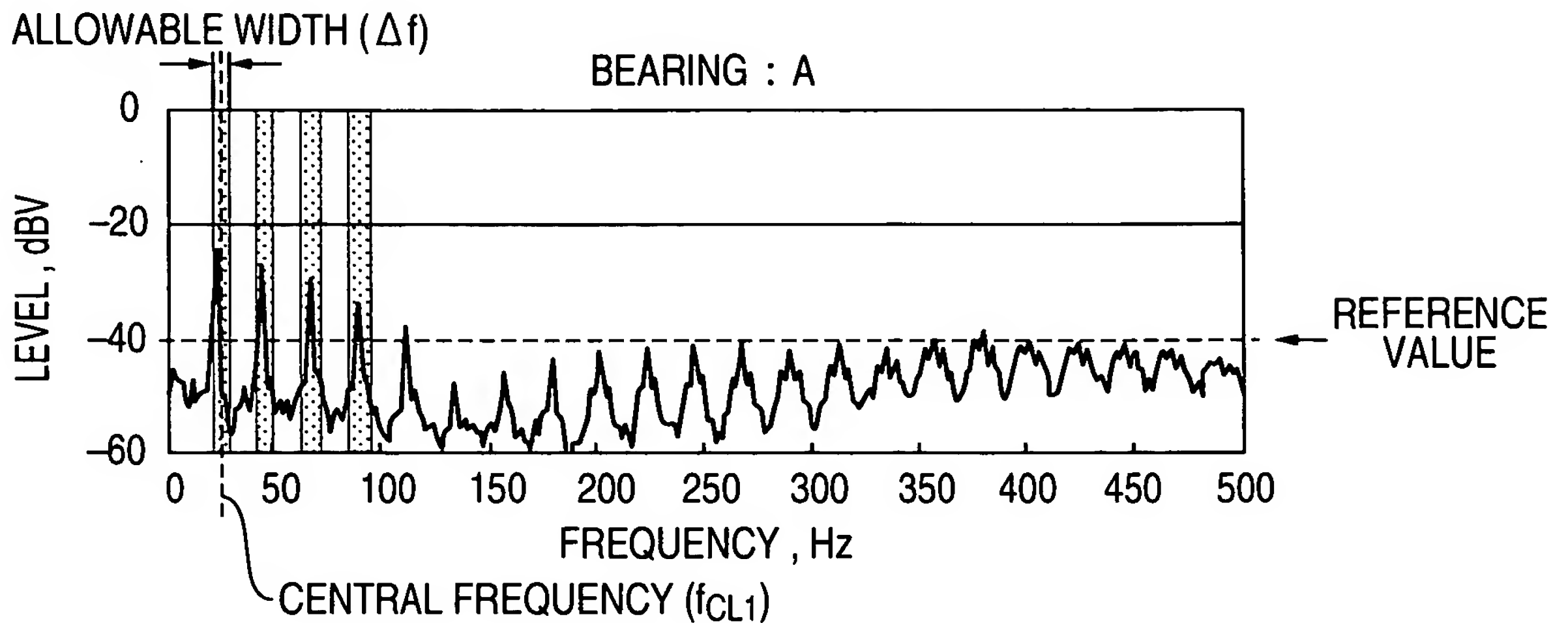


FIG. 36 (b)

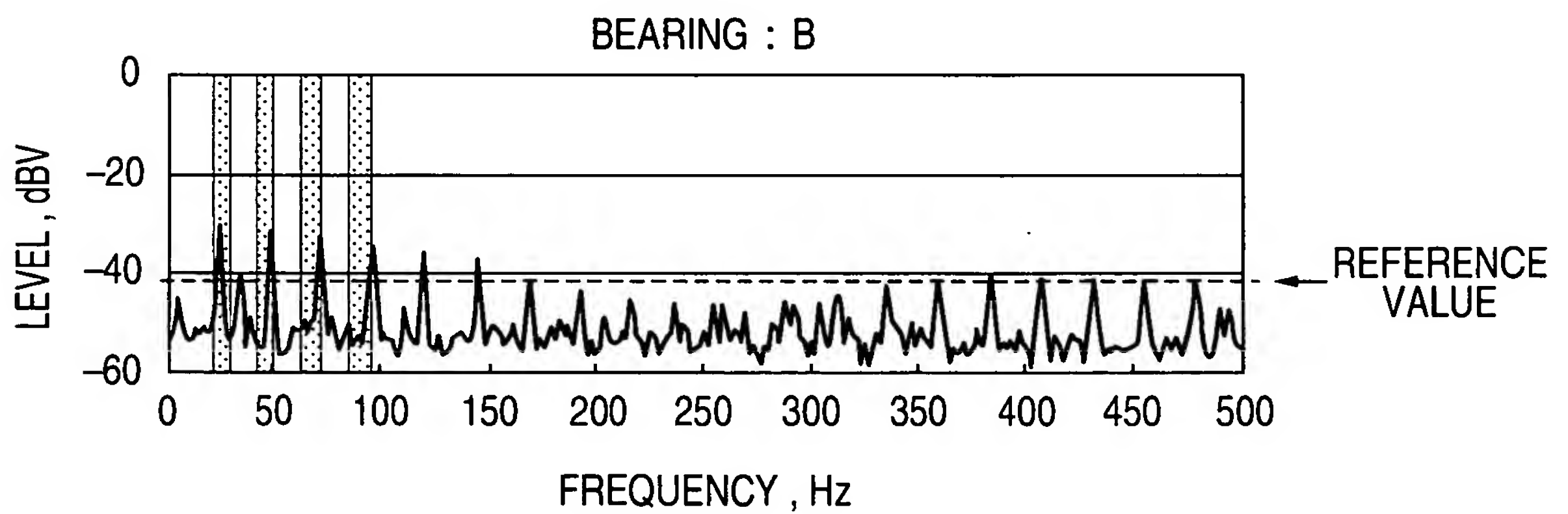
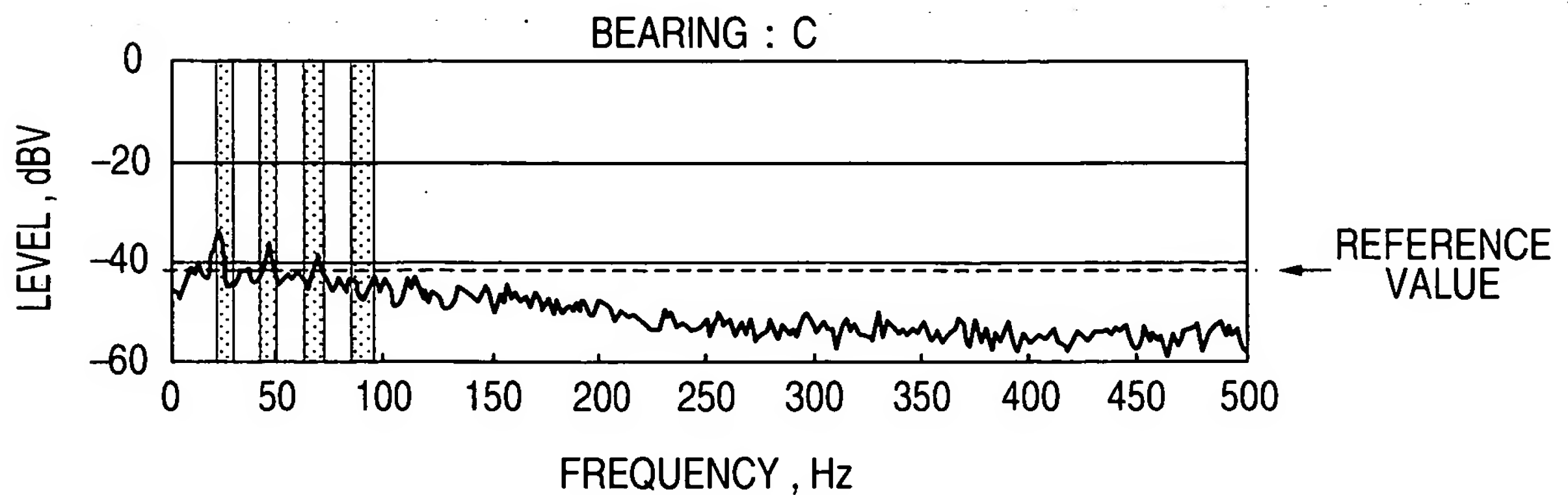


FIG. 36 (c)

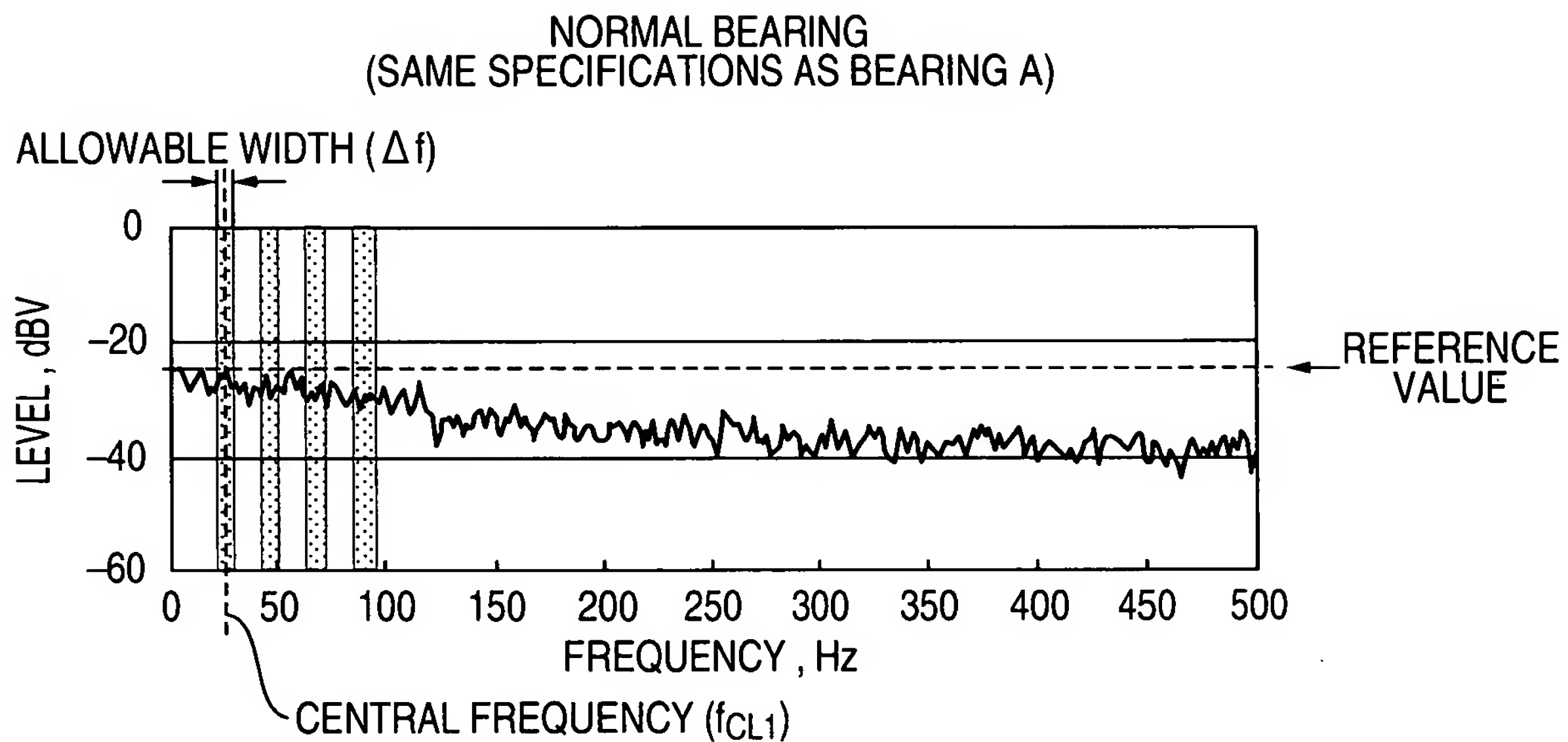


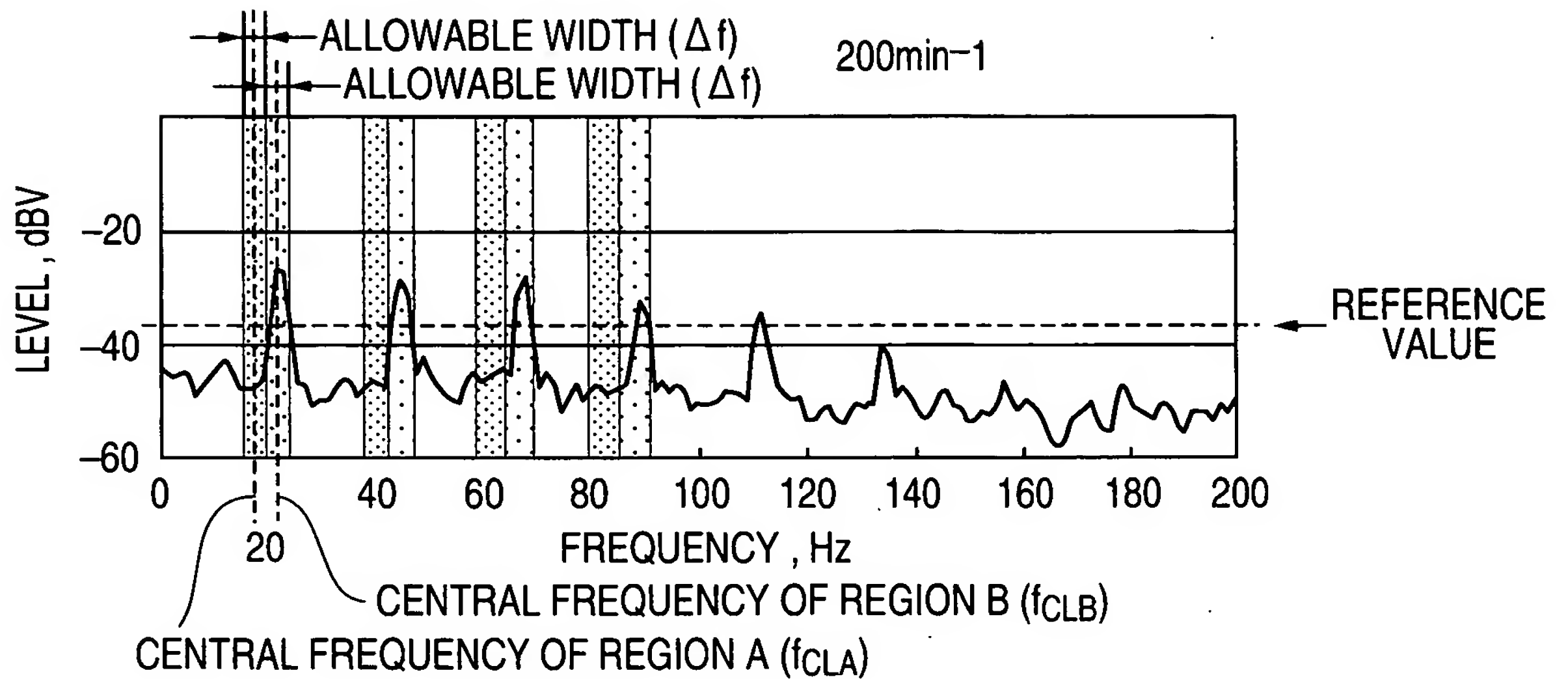
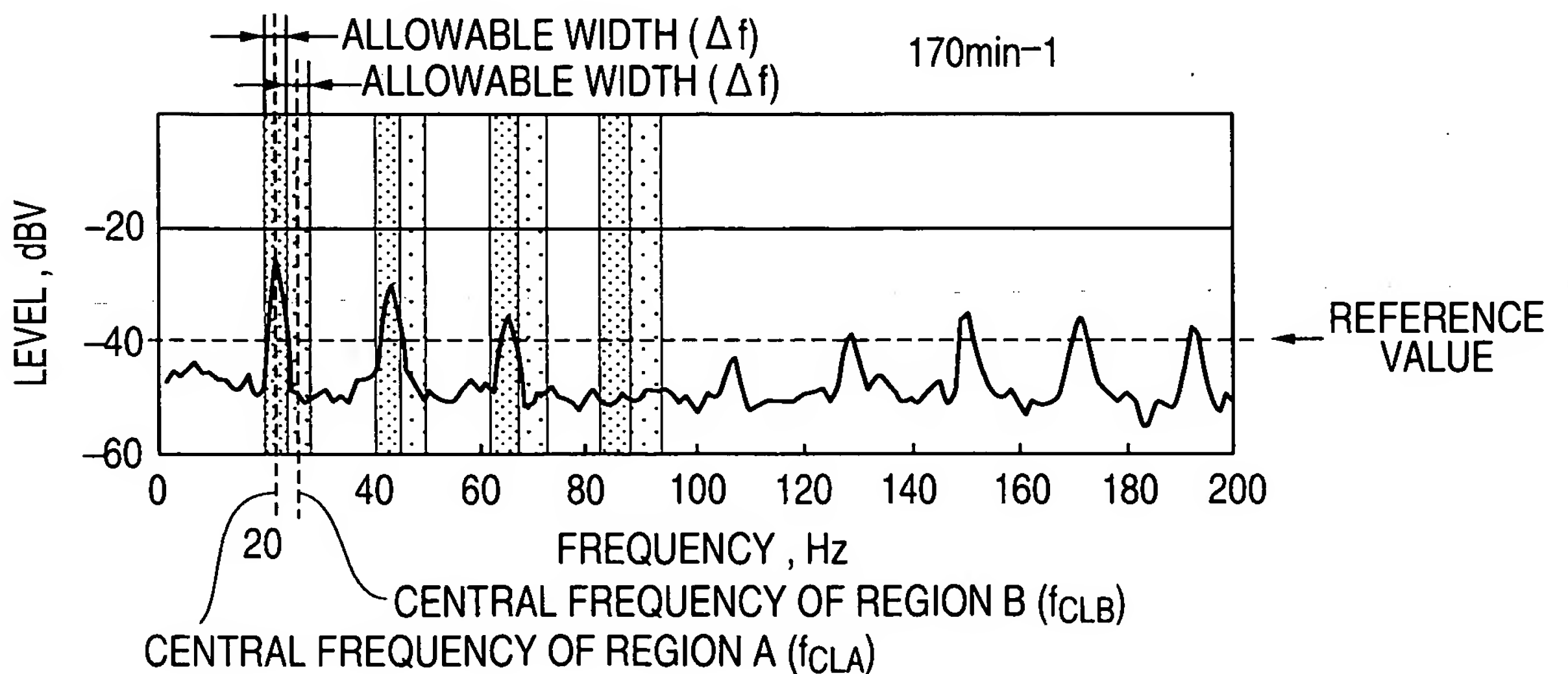


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FIG. 37



**FIG. 38 (a)****FIG. 38 (b)**

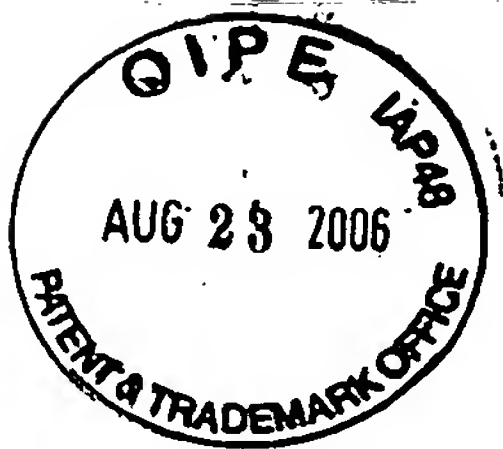


FIG. 39

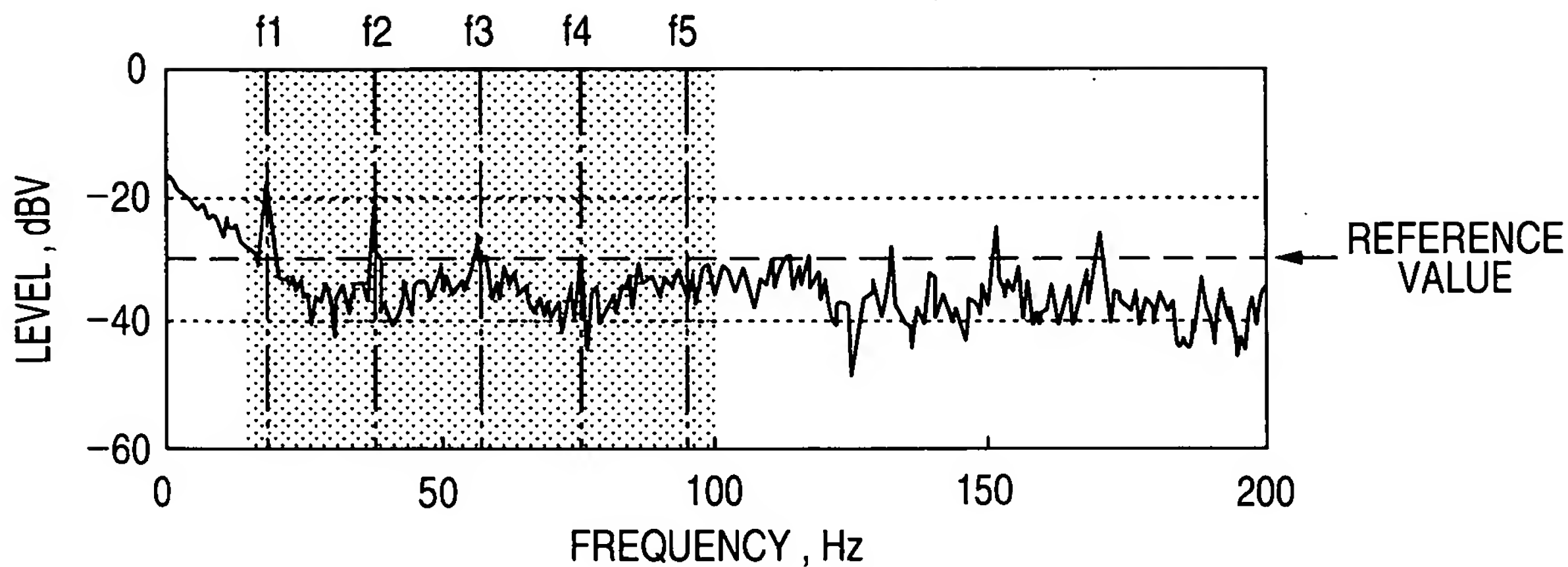


FIG. 40

